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METROWERKS PLANS TO AX CODEWARRIOR FOR MACINTOSH

BY ALEX HANDY

It's the end of an era.

Metrowerks has formally announced that it will pull the plug on its venerable development suite, CodeWarrior for the Macintosh, after one final iterative release this fall.

Michael O'Donnell, Metrowerks' manager of core technology marketing, said the company will support the upcoming CodeWarrior X and previous versions of the software for one full year before formally closing down all services related to the CodeWarrior for Macintosh brand.

O'Donnell also said that the company will release its C++ framework, Powerplant and Powerplant X, to the open-

source community.

CodeWarrior had been the primary development tool for Macintosh developers since 1985. With the release of Apple's Xcode on October 24, 2003, CodeWarrior was supplanted by a new, free alternative offered directly from the source of all Macintoshes.

O'Donnell said that revenue from non-embedded related development tools made up around 22 percent of Metrowerks' total revenues in 2001, but by last year, that number had shrunk to only 5 percent. This comes as a result of a concerted effort by Metrowerks to move the bulk of its product line into the embedded development market. ■

IBM Sings Harmony With Apache

Assists with open-source Java project Sun doesn't see need for

BY ALEX HANDY

IBM last month announced that it will be contributing to the development of an open-source J2SE 5 implementation under the Apache license. The project has been dubbed Harmony, and is intended to produce both a virtual machine and a class library to allow independent implementations to share runtime components.

This action comes less than a month after Sun's JavaOne conference, at which IBM and Sun both said their relationship is improving, although IBM continues to oppose the idea of having to license Java—which is worked on and advanced by the Java community—from Sun. In spite of that, Sun president Jonathan Schwartz at JavaOne said that IBM signed an 11-year deal to license the Java platform from Sun.

IBM continues to lead 12 current JSR projects and is participating in 56 others, according to recent information from the Java Community Process Program Management Office, so its move to support the Apache project does not appear to be an abandonment of the JCP efforts on Java.

The Harmony project is currently under development by the Apache Software Foundation. It was launched in May, but IBM's announcement last month has added a significant amount of credibility to the project. A spokesperson for IBM told SD Times that the company has "a few people working on the Harmony project as part of their larger duties," but refused to comment further until the project has progressed.

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BEA Slashes Pricing to the Core

Companies wrangle with how to charge for processors

BY ALEX HANDY

BEA Systems will announce next week that it is changing its licensing policy to end the 25 percent fee per core on multicore processors. The move comes on the heels of fresh per-core pricing revisions from Oracle, which announced last month that it would be charging 75 percent extra per additional core for its products.

These pricing moves offer insight into an industrywide dissonance on multicore licensing policies. While some companies charge more for use of their



'People who charge more than [25 or 30 percent per core] ...are gouging customers.'

—Bill Roth, BEA vice president

software on these new multicore systems, others, such as Microsoft and VMware, have decided against adding additional fees on the basis of the number of processor cores a system has. Still other companies such as IBM have varying multicore processor pricing structures: IBM does not charge additional fees for multicore CISC systems, but does charge additional fees for some multicore RISC chips.

At the heart of the issue is the debate about whether or not additional processor cores add enough processing power

to us that even though you have multiple cores on a die, that each new core does not mean a new processor's worth of performance," said Bill Roth, vice president for product and solutions marketing at BEA.

TIP OF THE ICEBERG

That view also syncs up with Intel's chief competitor, AMD.

Margaret Lewis, senior software strategist at AMD, said that multicore licensing issues are just the tip of the iceberg for most companies trying to rethink how they make their customers pay for software.

"There's a whole lot of issues around software licensing today,

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¹⁸ See also, for example, *United States v. Williams*, 504 U.S. 361, 370 (1992).

Apple Developers Taking to Intel With Aplomb

First indications from transition toolkit users point to a smooth ride

BY ALEX HANDY

There is one certainty for Mac developers: Change comes often to the Apple world. In the early 1990s, developers had to move their code from the 68000 series of Motorola processors to the PowerPC architecture. In the early aughts, they had to move it again, this time from Mac OS 9 to Mac OS X. And now, just as the dust has finally settled, the cadre in Cupertino has changed horses once again.

It's been two months since Steve Jobs announced that Apple Computer was going with Intel processors, and in that time, Apple's transition toolkit has made its way into the hands of the Macintosh cognoscenti. And in that time, it's become clear that this transition will likely be the easiest of all those yet experienced by Apple developers.

To help aid the change in processors, Apple has provided US\$1,000 Intel-based development machines, and a host of tools for use with the company's Rosetta translation system.

MANDATED MOVE TO XCODE

These tools, however, are as yet incompatible with CodeWarrior, the popular development suite



'I think if they had tried to switch from PPC to Intel back in the [Mac OS] 8 or 9 days, it would have been a much bigger challenge for a lot of people.'

—Rich Siegel, CEO and founder, Bare Bones Software

for the Macintosh. Apple has mandated that its developers move their code into Xcode, the company's native development environment, and for many Apple programmers, this—rather than the move from big endian to little endian—has proved to be the most difficult part of the transition process.

"It's like if you're speaking French and you need to learn German," said Chuck Rogers, chief evangelist for MacSpeech, a Louisiana-based developer of speech recognition software for the Macintosh. The codebase for his company's iListen software was originally developed in CodeWarrior. "There are vowels and names that you can pick up on. Once we're in Xcode, I think it will be easier to make improvements. If you use a development tool that's developed by the people who make the OS, you're going to be much more in sync

with the OS," he said.

"The fact that CodeWarrior isn't being upgraded is one factor," added Rogers, explaining why he and MacSpeech CEO Andrew Taylor were shifting to Xcode. "It hasn't impacted the addition of new features. During the migration from Mac OS 9 to X, instead of adding new features we had to move to the new platform. Adding new things

wasn't possible. I'd say it's a lot easier this time. The most difficult part about it is switching to Xcode, which is something that we'd be doing anyway."

That's a sentiment echoed around the Macintosh development community. Rich Siegel, CEO and founder of Bare Bones Software, made the Xcode transition over two years ago, and thus, the codebase of BBEdit, the company's flagship text editor, has survived the transition process with relatively little difficulty.

"I think the 68K to PPC transition was exceptionally well handled by Apple, given the pure size of the shift and the nature of the shift," said Siegel. "[With] the 9 to X translation, if

you stayed inside the lines and played by the rules, you ended up in pretty good shape."

Still, said Siegel, those transitions took time and effort beyond that which has been demanded by the move to Intel. Siegel attributes the speed of this most recent transition process to Apple's long-standing preparations for the move.

"They had the OS up and running for so long," continued Siegel, "and because the fundamental architecture of the OS is different—everything is abstracted—it's much easier to adapt your code for a new CPU architecture because the OS really protects you from all that. I think if they had tried to switch

► continued on page 22

Certification for IT Architects

The Open Group launches program to define skill sets

BY DAVID RUBINSTEIN

A new certification program for IT architects was launched last month by software vendor consortium The Open Group that defines skills and qualities for accreditation of individuals and organizations.

"Whether you're hiring or

contracting with a consultant, you can say, 'I want someone with vendor-neutral certification,'" explained Allen Brown, CEO of The Open Group.

The member organizations of The Open Group believe business is moving toward something Brown described as "boundless information flow," which transcends traditional stovepipes of data and applications.

"You can't just look at a finance system or a distribution system in isolation of everything else," he said. "You need an urban planner view to see how things integrate within the organization and with partner organizations. To have this boundless information flow, you have to have great architecture, or else you have a hodge-podge."

To gain certification, IT architects must demonstrate a level of understanding of core foundation skills, such as the ability to communicate effectively, to lead individuals and teams, to use business requirements to develop an IT architecture, to use modeling techniques, and to define a solution to functional and nonfunctional requirements, according to The Open Group's documentation of the program.

Architects also must demonstrate they have experience in producing IT architectures,

experience with a number of types of systems and application architectures and hardware and software platforms. Some of the roles that fall under the heading of IT architect might be business analyst, methodologist, project adviser, solutions designer or technical adviser, according to the documentation. In the future, specific certification programs for enterprise architecture, or business, information or application architectures, could be developed.

There are two routes to certification, Brown said: direct certification, in which an architect applies to The Open Group, and indirectly through third-party programs accredited by The Open Group. "Organizations with a large body of in-house architects might want their program certified and then they can do their own certification of their individual architects," Brown explained. This option, he noted, gives organizations the ability to test for more than The Open Group does, so long as those processes meet the group's criteria, he said.

The IT architect certification program is the second one The Open Group administers; it also runs a program for practitioners of the group's architecture framework, TOGAF. ■

HP Cuts Cost Alan Kay a Job

BY ALEX HANDY

When Hewlett-Packard announced last month that it would be eliminating 14,500 jobs over the next six quarters, CEO Mark Hurd stated that the company would be cleaning house in its administrative and overseas offices rather than taking the scalpel to its research and development facilities in the U.S.

But just one day later, it was announced that about 70 of the 700 jobs at the company's HP Labs would be eliminated. The terminated positions correspond to four axed projects, one of which was headed by programming pioneer Alan Kay. As a result of these cuts, Kay, who has been a senior fellow at HP since 2002, will be leaving the company.

Kay made a name for himself in the late 1960s and early 1970s by creating numerous comput-

ing paradigms, such as the laptop and the graphical user interface, long before their time. He is often credited as the father of object-oriented programming. The title is slightly misleading, however, as the creators of the first object-oriented programming language, Simula, were Kristen Nygaard and Ole-Johan Dahl of the Norwegian Computing Center.

It was Kay, however, who created the first dynamic object-oriented programming language in 1966. In 1967 at the Utah ARPA project, Kay helped design the original implementation of ARPAnet, the forerunner of the Internet. Kay went on to work at Xerox Parc.

In more recent times, Kay was an Apple Fellow, a chief scientist at Atari and a Disney Fellow. He has won numerous awards, including the Turing



Alan Kay was working to reinvent the GUI from the ground up.

Award, and has been elected as a Fellow of the American Academy of Arts and Sciences.

While at HP, Kay was working on a new graphical user interface design called Croquet, which attempted to reinvent the GUI from the ground up using modern technology. The project will likely live on in its open-source form, known as Open Croquet. ■

Neon Lights Way for Web Services Access

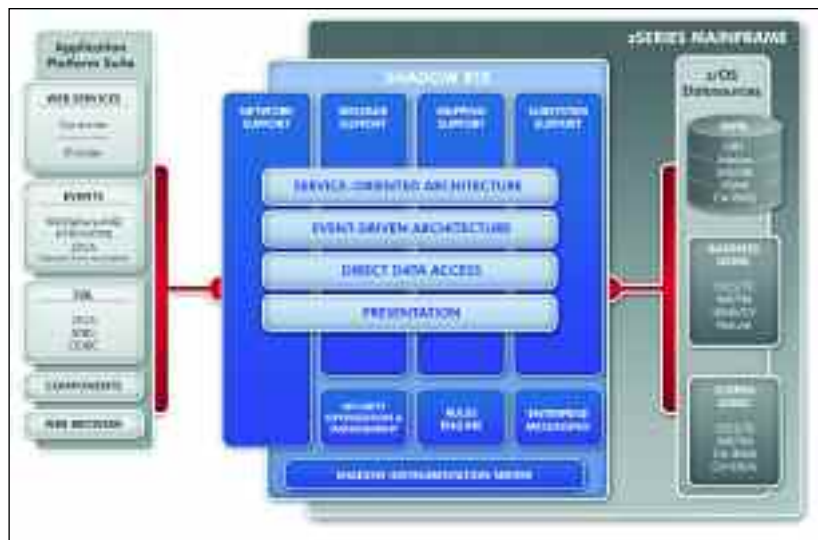
Shadow RTE tackles mainframe integration with optimization management, security

BY DAVID RUBINSTEIN

There are three primary ways to integrate a distributed platform with a mainframe platform, according to Neon Systems: direct access to databases using SQL, event-driven integration in which an external server waits for events to stream off the mainframe, and direct communication with applications using Web services.

Existing members of Neon's Shadow product suite already addressed the first two methods but were weak in the third, according to CEO Mark Cresswell. Now, with the release this month of Shadow RTE (Real-Time Enterprise), based on technology the company gained from the acquisitions last year of InnerAccess Technologies and ClientSoft, Neon claims to have all three bases covered.

"Because Shadow RTE is so close to the metal, it's a unified platform in the runtime and development areas," said Robert Evelyn, senior vice president of Neon and the former COO of



With Web services communication, Neon says its integration offering is more complete.

ClientSoft, which Neon acquired in December 2004. "There are no gateways and other middle pieces of server or code that cause operational inefficiencies and escalating costs."

Cresswell said Shadow RTE's developer toolkit is built upon the Eclipse framework, providing the ability to create Web services integrations. Developers or

systems integrators can construct microflows of data that navigate multiple screens, all from the memory within the product, he claimed, adding there is no network latency associated with navigating the screens.

This, Evelyn explained, is because Shadow RTE uses low-level APIs to get to data by its field name and not its location on

a screen. He added that this also provides a unified platform for integrating with numerous different application, data and mainframe environments that is not limited simply to CICS, IMS or DB2, for example. "We've taken the address approach and extended it from SQL to Web services and events so you can do a trace down to a call and see what happened without impacting performance."

Shadow RTE includes what Neon calls service optimization management, which basically turns the throughput throttle mechanism into a security manager. "Every time you run a Web service, you're logging off and on to make sure it's secure," Evelyn explained. "Now, you have the ability to look at what RACF [Resource Access Con-

trol Facility] is authorizing, see if it's right, and then go ahead and authorize it" without logging on and off each time, he said.

The new software also lets Web services access mainframe data directly, in addition to applications at the logic layer, Evelyn said. Using the analogy of database stored procedures, he said Shadow RTE encapsulates input predicates and output result sets through WSDL, shielding the developer from the database schema. "It might be VSAM or IMS DB, but the developer only need call the WSDL into the development environment."

Shadow RTE also provides for asynchronous messaging, which Cresswell explained more closely mirrors business processes and how people interact, along with the synchronous request/reply messaging capability. When used in conjunction with IBM's WebSphere MQ, Shadow RTE can inspect the payload of those messages and pass them on to the appropriate downstream services. ■

More IBM, Microsoft Specs Find an OASIS

BY ALEX HANDY

When Microsoft and IBM set out in 2002 to create new standards for secure transactions over the Web, both companies intended to turn over their work to public standards bodies upon completion. In September, three more of them are being handed over to the Organization for the Advancement of Structured Information Systems (OASIS) for transition into open standards.

The three specifications are WS-SecureConversation, used to encrypt multiple transmissions; WS-Trust, which defines methods of token exchange and trust establishment; and WS-SecurityPolicy, a framework for other Web Services.

Of the three, WS-SecurityPolicy could face the most resistance from an OASIS technical committee, said Hal Lockhart, senior principal technologist at BEA Systems. Lockhart was one of the many authors of WS-SecureConversation and WS-Trust, and is also a member of OASIS.

"Last winter a whole bunch of companies were invited to join those [WS-Trust and WS-SecureConversation] specs," said Lockhart. "As submissions to OASIS go, they are relatively mature. The [WS-SecurityPolicy] is in a really different situation. The authors have been mulling it for quite a while. I saw this version maybe two days before the world. If you look at the authors list, there are only four author companies: Verisign, RSA, IBM and Microsoft."

Lockhart continued, "The basic idea [of WS-SecurityPolicy] is simple: letting Web services say, 'If you want to use this service, this is what I require of you; this is what I will do.' This is a different use of policy, where you're informing computers about something you promise or require. In theory, it could include things that are not computer things, like 'We promise to retain this data for five years.'"

WS-SecurityPolicy relies on the underlying WS-Policy and WS-Federation specifications, which have not been released

by Microsoft and IBM.

The delay in the offering of WS-Policy is exemplary of the development process that the Web services security specifications have weathered. Tony Nadalin, chief security architect for IBM's software group, said that these efforts did not reach completion as quickly as he would have liked.

"It's been three years because, basically, WS-Security was a fairly simple thing to do because it was the base," says Nadalin. "Now what we're doing is building upon that base. Taking these to a standards body was right in line with what we wanted, it just took longer than we would have liked to have seen."

Yet now that the initial designs are finished, there is still a long road ahead for the WS- suite.

"I think that Trust and SecureConversation will go through in a fairly straightforward fashion," Lockhart said. "When the WS-Security spec was first submitted in the fall 2002, the TC formed, and then

it was [about nine months before we got an interop [WS-Interoperability]. Then April 2004 we got the first three specs finished all the way through the OASIS process. For a TC to do something in a year, year and a half, is actually pretty fast."

In addition to the often lengthy standards development process these services must undergo, questions are being raised over licensing issues related to the Web services specifications. Sun Microsystems, a member of OASIS, made it clear that it wanted to see Microsoft and IBM offer WS- as royalty-free specifications. When Microsoft and IBM announced that they would comply with Sun's demands, many considered the move to be an attempt at bridge-building between the often hostile companies.

But Simon Phipps, chief technology evangelist at Sun, said that even a royalty-free standard is not necessarily an open one.

"Those are homegrown specs that have been created in a



BEA's Lockhart sees a long road to approval still ahead for Web services standards.

closed garden farmed by IBM and Microsoft," asserted Phipps.

Depending on how the services are chartered, OASIS' standards could require companies to deal with Microsoft and IBM directly before implementing WS-SecureConversation, WS-Trust or WS-SecurityPolicy. But these issues have yet to be decided.

The standardization of these services seems to be of secondary concern to Microsoft, which has already begun to implement them in its Infocard user identity system, an integral part of Vista, the upcoming release of the next iteration of the Windows operating system. ■

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Microsoft Kisses Longhorn Goodbye; Unveils Beta of Vista

BY JENNIFER DEJONG

Microsoft last month released the first beta of the newly named Windows Vista desktop operating system, formerly known by the code name Longhorn.

The beta (msdn.microsoft

.com/subscriptions) includes the Avalon and Indigo subsystems, which also are leaving their code names behind. Avalon (for managing multimedia files) has been named Windows Presentation Foundation, while

Indigo (for managing Web services) is officially known as Windows Communication Foundation, said Microsoft's John Montgomery, director of product management for the developer division. The name

changes also were announced last week.

Montgomery confirmed that Vista, the desktop piece of the forthcoming version of Windows, is expected in 2006. Microsoft said earlier that the

server will not be delivered until 2007. But he said he did not know whether Microsoft plans a new name for the forthcoming version of the Windows server.

Among the new features in the Vista beta is a set of APIs for auxiliary display technology, which will enable a tiny display device attached to a laptop to alert users when e-mail arrives or calendar appointments come up, even though the laptop is in a hibernate or standby mode. No such device exists yet, but hardware manufacturers are working on prototypes, Montgomery said. "The device will stay awake when your laptop is asleep." ■

Automating Application Internationalization


BY DAVID RUBINSTEIN

Targeting companies looking to expand sales beyond North America, internationalization software company Lingoport has partnered with localization and translation firm Conversis to deliver a combined suite of services based on Lingoport's Globalyzer software.

There's more to the process of converting software for international use than mere translation, asserted Adam Asne, CEO of Denver-based Lingoport. "How do you handle a Chinese character with twice the bits and bytes of an ASCII character? You need to comb through a million lines of source code to ensure it works" after the conversion, he said, noting that there are so many things that can break when you consider differences in time, address codes and the like. The software then steps developers through the fixes, doing what Asne called "just-in-time training" and verifying that the code is correct.

Globalyzer automates the process of pulling out strings from source code that can break when code is converted, dramatically reducing the time and cost of internationalization, Asne said. Those strings are then repurposed for use in the local language, with the software helping to detect and refactor unsafe methods, he added. Globalyzer supports Java, C/C++, C#, JSP, ASP and other languages. ■

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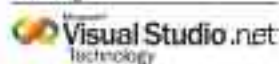
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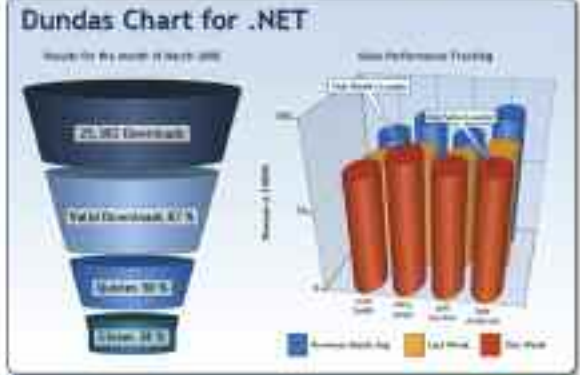
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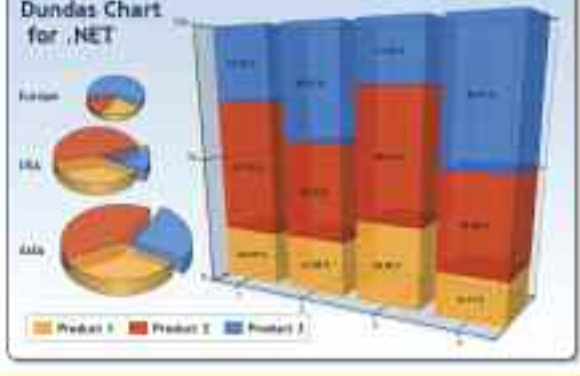
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ECMA Sets Standard for Eiffel Language

BY ALEX HANDY

The European Computer Manufacturers Association International has created ECMA-367, a standard for the programming language Eiffel. Originally created in 1985 by object-oriented

programming pioneer Bertrand Meyer, Eiffel has matured into a full-featured, if relatively unknown, language. With the establishment of an international standard, the language also has undergone a major

revision at the hands of ECMA and its creator.

"Eiffel is a method of software construction," reads the ECMA standard, "and a language applicable to the analysis, design, implementation and

maintenance of software systems. This Standard covers only the language, with an emphasis on the implementation aspects." ECMA-367 outlines all the major aspects of this programming language, including "some require-

ments on a conforming implementation of Eiffel, such as the ability to produce certain forms of automatic documentation."

Some of the changes brought to Eiffel by the ECMA standard include the addition of support for nondecimal integers, verbatim strings and sized variants of "String."

According to the Wikipedia article on the language (en.wikipedia.org/wiki/Eiffel_programming_language), Eiffel's distinguishing characteristics are listed as "Design by contract (DbC), liberal use of inheritance, a type system handling both value and reference semantics, and generic classes. Eiffel has a unified type system—all types in Eiffel are classes, so it is possible to create subclasses of the basic classes such as *INTEGER*."

UNIQUE HERITAGE

SD Times Windows and .NET Watch columnist Larry O'Brien, who has worked with Eiffel in the past, said, "Eiffel's heritage is fairly unique; it's not derived from C, and its relationship to, say, Pascal is pretty limited. While we could pick over its relationships to a bunch of other languages such as Ada and Smalltalk, it's probably more interesting as foreshadowing several capabilities that have now made it into more popular languages, including high-performance bytecode translation and compilation, embedded code comments, and most importantly, design by contract, which is a superset of the quality-oriented techniques that characterize agile, test-driven development."

Bertrand Meyer, creator of the Eiffel programming language, writes a monthly column on the Web site of Eiffel Software (www.eiffel.com), a company he founded to offer Eiffel-related programming suites and products. In his April column, he detailed the ECMA approval process, which he said is more intensive, yet faster than those of most standards bodies.

"Most standard committees take a strictly stabilizing approach: consolidate what's accepted, don't invent," wrote Meyer. "We decided to be bolder, taking advantage of the innovativeness of the Eiffel community. The resulting language is, in my opinion, incomparably better than what we had before." ■






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Macromedia's Web App Tool Suite Undergoes Big Changes

BY DAVID RUBINSTEIN

Fleshing out its offering for creating enhanced Internet experiences, Macromedia earlier this month released Studio 8, an update to its development tools suite that includes two new products.

The suite consists of Web application development environment Dreamweaver, presentation and workflow designer Flash Professional, and graphics creation tool Fireworks; this release adds Contribute and Flash Paper, according to Jim Guerard, vice president of product management and marketing in Macromedia's tools division.

With new mobile application authoring and real-time graphics capabilities, along with better-quality, more-interactive video, the release heralds "a fundamental change in the look and feel of the Web," Guerard said. Not only does the release target the company's core customer base of Web developers, but the new functionality should attract video professionals as well, he added.

VIDEO IN FIVE CLICKS

Yet Web developers remain "the heart and soul" of the tool suite. New in Dreamweaver 8 is a WYSIWYG interface for adding video into an HTML Web site "in five mouse clicks," Guerard said. "That makes it easy for our traditional users who aren't advanced programmers." Other new capabilities include visual authoring with XML data, and CSS layout visualization, he noted.

Fireworks has new blend modes for images and content that can be converted to Flash modes for playback, Guerard said. It also has tight integration with Flash and Dreamweaver so images can be edited in those tools, ending the cycle of round-trip editing that often resulted in the loss of images or text, Guerard said.

Flash Professional now lets users embed cue points in a presentation that can trigger other activities, and the tool adds alpha channel support, important for overlaying images or audio over Flash content, Guerard explained. The new version of Flash Professional also includes a Flash Lite module for mobile application testing and hardware emulation. "You can click on the [devices] you want to deploy to, and generate an

interactive emulator on which all the keys on the phone it is emulating work, so developers can actually see how the application will perform on the device.

Contribute is a tool for collab-

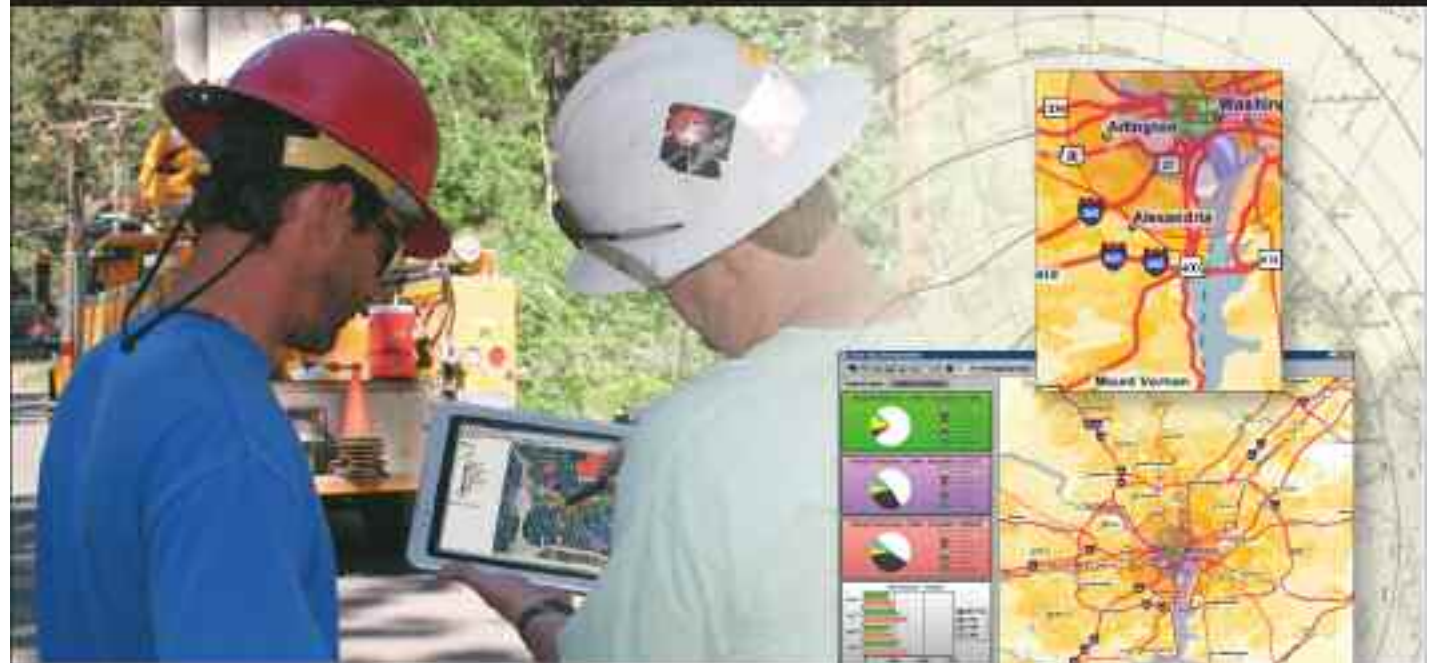
orative communication, and Flash Paper is used for converting any printable document to PDF or for embedding into a HTML Web page, Guerard said.

Macromedia, which sold two

versions of Studio MX 2004—the last release of the tools suite—will sell only one version of Studio 8. It will cost US\$999 per seat. Customers of any of the core Macromedia prod-

ucts—Dreamweaver, Fireworks or Flash Professional—can upgrade to Studio 8 for \$399. Upgrading from any previous version of the suite will cost \$199. ■

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Population demographics analysis application



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News Briefs

COMPANIES

Talk to the handheld: **PalmOne** is back to being **Palm**. In 2002, Palm Inc. split itself into two pieces: PalmSource, which developed the operating system, and PalmOne, which offered handsets and devices. The two companies shared ownership of the original brand identity. In mid-July, PalmOne purchased rights to the Palm brand name and logo from PalmSource, and resumed operating under the Palm name.



NEW PRODUCTS

Hampshire, England-based Henshuu is offering **Ken TestMan**, a Web-based test management application. The software documents system requirements, creates test cases and test plans, and records results of test executions. It also includes an integrated defect-management system and can produce real-time management reports. Ken TestMan costs £1,600 per server for unlimited users . . . Sybrex Systems is offering **VersyPDF 1.0**, a PDF library designed to allow applications to create portal document files that include multiple images and vector art features. VersyPDF supports Type 1 and TrueType fonts, and both Unicode and standard PDF encodings. The US\$499 library has functions for embedding true vector EMF, TIFF, JPEG, PNG and BMP images, text positioning and character spacing options, compression options, linearization and 40- and 128-bit encryption . . . Oracle announced **Fusion Middleware**, an integrated business process platform designed to simplify the security of SOAs and Web services. The platform uses Oracle BPEL Process Manager and Oracle Web Services Manager. Fusion Middleware includes Policy Manager, a graphical tool for building new security and operations policies, storing policies and managing distribution and updates to runtime agents and gateways. It also includes policy gateways, which are deployed in front of a group of applications or services to intercept inbound requests in order to enforce policy steps; policy agents that plug into an application or service; and a management dashboard . . . EmbeddedPlus Engineering has released **DoorKeeper 1.0**, an Eclipse-based integration between Telelogic's DOORS requirements management system and IBM Rational's Software Development Platform. DoorKeeper is designed to improve communication between teams of analysts and designers working on software and systems projects by providing access to both UML modeling artifacts and DOORS requirements from the same user interface. In addition, users can view and edit DOORS requirements, create links between DOORS requirements and UML models, and achieve, maintain and report on traceability between requirements and model elements.



UPGRADES

Kuka Controls has updated **VxWin**, its real-time extension that lets VxWorks run in embedded applications along with Windows XP. VxWin 3.1 adds support for both APIC and multiprocessor systems, including support for the ACPI uniprocessor and ACPI multiprocessor hardware abstraction layers. VxWin also can now be started as a service, allowing the application to begin real-time processing without user log-on . . . The new version of **ImageGear**, the image processing library from AccuSoft, now supports the RAW file forms used by 12 camera manufacturers, as well as Adobe DNG and TIFF/EP formats. ImageGear 14.5 also handles pixels natively in their input format, rather than converting to 24-bit images, and can automatically convert between color spaces and depths. It also includes a new raster converter . . . Artisan Software Tools has added ergonomic profiling capabilities to **Artisan Studio**, its UML-compliant modeler. Ergonomic profiling lets Artisan Studio 6.0 take on new menus and explorer windows based on the UML profiles the user is working with, including new icons, item types and diagrams. The new release also includes a profile for Department of Defense Architectural Frameworks (DoDAF), and embeds a multiuser change-tracking system. Version 6.0 lets developers choose whether code generation will happen on demand or automatically. Out of



► continued on page 16

Following Open-Source Trend

Hewlett-Packard, Rogue Wave make donations to Apache

BY JENNIFER DEJONG

There's no stopping the momentum behind open-source code donations.

Following the industry leaders, Boulder, Colo.-based Rogue Wave Software last month announced that it has donated its cross-platform C++ Standard Library to the Apache Software Foundation's incubator program. Earlier, Hewlett-Packard said that three of its offerings had moved out of the foundation's incubator, gaining status as official Apache projects.

Giving code to open-source initiatives is a fundamental change for the entire industry, noted Rogue Wave's president, Cory Isaacson. "It's a big thing, and we wanted to support it." IBM led the open-source charge. The company backed the Eclipse framework and also contributed code to Apache as early as 1999, when it donated its XML Parser for Java. Since then, BEA, JBoss, Sun and a host of other companies have followed suit.

Rogue Wave made its donation not only to show support for open source, but also because C++ standard libraries, which provide basic algorithms, have become commodities, according to Isaacson. Companies that sell compilers include platform-specific versions of the library with their offerings. And Rogue Wave includes its C++ Standard Library, which works across multiple compilers, databases and operating systems, with its SourcePro C++ toolkit. "You can buy the Standard Library separately, but we didn't have a lot of revenue tied to it," he said. SourcePro is a set of components that shields developers from the intricacies of C++. As Rogue Wave's Apache offering (incubator.apache.org/stdcxx) grows, the company expects to incorporate updated versions of it in SourcePro, Isaacson said.

HP IN ON THE ACT

Hewlett-Packard unveiled three Apache projects, all of which are implementations of emerging Web services specifications managed by the Organization for the Advancement of Structured Information Standards (OASIS) consortium. Devel-

oped by HP and The Globus Consortium, Apache WSRF (ws.apache.org/wsrf) is an implementation of the Web services resource framework, a specification that aims to define life-cycle management issues associated with a Web service, said HP's director of software standards, Judi Cowell. For instance, WSRF specifies whether a service is up and running, or down, and also notes whether configuration changes, such as adding more memory, have occurred.

Also co-developed by HP and The Globus Consortium, Apache Pubsub (ws.apache.org/pubsub) is an implementation of the Web services notification specification WSN, which enables Web services to support a publish/subscribe event model and manage the transactions associated with it. Say, for example, that an application subscribes to a Web service that provides current weather information, said Cowell. If that service fails, WSN can turn on another service that

provides weather data, handling the associated billing functions, she said.

The Globus Consortium, which counts IBM, Intel, HP and Sun among its members, is a nonprofit organization that promotes open-source grid technologies.

Muse (ws.apache.org/muse) is HP's implementation of the Web services distributed management (WSD) specification, which was approved by OASIS earlier this year.

Muse provides standard interfaces for managing protocols used among Web services, and deals with performance characteristics such as speed and bandwidth, according to Cowell.

Cowell said that donating code to open-source initiatives helps ensure consistency and interoperability across different development environments. She also noted that HP is likely to implement future versions of all three Apache offerings in its SOA Manager, which today supports the current versions of all three Web services standards. ■

C++ GETS IN SYNC WITH MORE OPERATING SYSTEMS, COMPILERS

Rogue Wave updates SourcePro offering

BY JENNIFER DEJONG

Rogue Wave Software has added new names to the long list of operating systems, compilers and databases with which its C++ toolkit works.

The Boulder, Colo.-based company last month announced SourcePro C++ edition 8. The suite of components and libraries eases the process of writing C++ applications that can run on Linux, Windows and various Unix operating systems and that work with a host of compilers and databases, said Rogue Wave senior product manager Shannon Lewis.

Edition 8 increases to 50 the total number of supported operating systems and compilers, she said.

New operating systems include IBM AIX 5L 5 v5.3 for Power5/RS6000, Hewlett-Packard HP-UX 11i v2, Red Hat Enterprise Linux 4, Sun Solaris 10 and SUSE Linux Enterprise Server 9.

This release supports Intel

C++ 8.1, Microsoft Windows 2003 SDK (for Itanium2), IBM XLC++ 7 and Sun Studio 9 and 10 compilers, as well as the following databases: IBM DB2 8.2, IBM Informix 2.90, MySQL 4.1.x and Sybase ASE 12.5.2.

SourcePro is aimed at ISVs and other developers that need to migrate C++ applications from one platform to another. Because it defines a high-level API, developers can write platform, compiler and database independent code.

The company was acquired in 2003 by Englewood, Colo.-based Quovadx, which makes business process management and other applications for the health-care industry.

Because Rogue Wave's offerings are aimed at professional developers, the two product lines are not expected to merge.

"They serve different audiences," said Lewis. ■

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Eclipse Project Aims for Rapid Adoption of RIAs

BY JENNIFER DEJONG

IBM and Laszlo Systems have teamed up to help developers write rich Internet applications.

The two companies last month jointly proposed an Eclipse project known as IDE

for Laszlo. It is based on OpenLaszlo, an open-source platform for developing rich Internet applications that run in a Web browser enabled with Macromedia's Flash player, said Antony Campitelli, vice presi-

dent of marketing for San Mateo, Calif.-based Laszlo. RIAs based on Laszlo's platform run in Web browsers, but because they can deliver sophisticated features such as video and audio clips without having

to refresh the Web page, they look and feel more like desktop applications.

IDE for Laszlo was developed by IBM and made available last year on alphaWorks, its Web site for emerging technolo-

gy (www.alphaworks.ibm.com/tech/ide4laszlo). The IDE is essentially a set of plug-ins for Eclipse that lets developers write and test rich Internet applications based on Laszlo's technology without having to know the ins and outs of LZX, Laszlo's XML and JavaScript description language.

"Authoring a Laszlo program is similar to authoring an HTML script. The developer needs to know the names of the tags the language uses," explained Laszlo's vice president of engineering, Oliver Steele. IDE for Laszlo eliminates that need, he said. Steele anticipates that by making the IDE available on Eclipse, developers will improve it by creating new components, in addition to the user interface buttons and sliders already provided.

When IDE for Laszlo will be approved by Eclipse isn't clear yet. ■

"We deeply regret this incident"

Kevin Kessinger, EVP, Citigroup June 2005



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Troux Integrates Metis, Repository For EA Modeling

BY DAVID RUBINSTEIN

The release last month by Troux of Metis 5.0 brings together the enterprise architecture modeling functionality gained in the Computas acquisition earlier this year and Troux's object-level IT governance repository to provide a solution that the company says handles reporting, object management and automated collection.

Aside from merging the two product lines, Metis 5.0 adds two key new features, according to vice president of product management Jonas Lamis—a policy manager engine that relates organizational or regulatory rules to the underlying IT components affected by those rules, and a workflow engine.

Metis Enterprise, the flagship of the old Computas product line, becomes a configuration of Metis 5.0 for enterprise architects, and includes the bundling of the client-side model designer and editor, metamodel designer and framework templates as well as the Metis Team Server collaborative repository for sharing models, Lamis explained. Metis 5.0 customers could license the Team Server separately. ■

Data Management Problems Businesses Can Relate To

Digital Harbor updates platform for bringing disparate data into single application

BY DAVID RUBINSTEIN

Saying data management is a relationship problem more than a display and aggregation problem, Digital Harbor earlier this month released an update to its PiiE platform for the development and deployment of composite, contextual applications that can fuse data from multiple sources and applications.

The platform provides a modeling tool for developing a logical integration layer that provides connectivity to the underlying data stores, leaving the data, processes and rules where they sit, according to vice president of product management and marketing Austin Wells. The modeling tool also can be used to define the links and relationships between processes, rules and assets, and to map those to the data. The platform ships with a server called Fusion that includes a rules engine to drive those associations. Using the platform, a bank, for example, could determine if a "customer" holds other accounts at the bank so as to be more likely to repay a loan than a "customer" with no prior relationship to the lending institution, Wells said.

Finally, the platform comes with a Smart Client Builder for developing the interface, which can present all information relevant to a customer, such as what other products the customer has purchased in the past and who he purchased them from, Wells said. He described this capability as "train of thought analysis."

A technical business analyst would create the model, while a developer would need to create the physical mapping to the data, Wells said. The graphical modeling tool has tabs for data concepts (called entities), process, events, rules and mapping. "Each node acts like a filter on a query," Wells said. "Let me see customer. Let me see branch." With the platform, he asserted, there is no need to hard-code "event" to "branch" or to write queries. "It shrinks the gap between what business needs and what IT can do in a reasonable [amount of] time and cost."

New to version 4.6 is support for the Ontology Web Language, a key piece of the World

Wide Web Consortium's Semantic Web, so OWL models can be imported and exported, and new wizards that Wells said

ease the definition of relationships. There also are more powerful visualization capabilities for the technical business ana-

lyst, who might not understand modeling or back-end system connectivity, but understands relationship charts that show

inventory systems, service groups and sales teams, even if all are stored in different sources. ■

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Modeling Makes Its Way to MyEclipse

BY JENNIFER DEJONG

Genuitec's low-cost Java IDE has made its first foray into modeling.

The Plano, Texas-based professional services firm was expected to announce earlier this month MyEclipse Enterprise Workbench 4.0, which offers modeling tools that generate code, as well as better support for JavaServer Faces (JSF) and the Oracle database.

New to this release, built on version 3.1 of the Eclipse framework, is the ability to model applications using Use Case, Class, Collaboration, State, Activity and Deployment

diagrams based on the Unified Modeling Language. Code is automatically generated from the model, said Genuitec president Maher Marsi. A future release also will allow developers to resync the model and codebase in real time, he said.

MyEclipse 4.0 provides a tool for linking to and working with Oracle databases, and a graphical designer for JSF, which includes drag-and-drop capabilities and wizards that generate application classes. The graphical view of the JSF application is synchronized with the source code, so a change in one is automatically reflected in the other,

said Marsi. The prior release required developers to write most of the JSF code by hand.

Genuitec provides professional services for Java and Java EE (formerly J2EE) development. The company initially created development tools for its own use on client projects, and in 2002 it launched MyEclipse as a low-cost alternative to popular Java IDEs such as Borland's JBuilder, IBM's WebSphere Studio Application Developer and

JetBrains' IntelliJ. In the past year, Genuitec has begun to derive an increasing share of revenue from tools, said Marsi. Last year, tools represented 50 percent of the company's revenue, but in 2005 tool sales are expected to account for 80 percent. MyEclipse standard edition sells for US\$29.95 per developer; the professional edition, which adds support for UML and Oracle, is \$49.95 per developer.

Other 4.0 updates include

support for Geronimo 1.0 and Sun Java System Application Server Edition 8.1, bringing the number of application server versions supported to 26, as well as support for Hibernate 3.0, the open-source object-relational mapping tool. The next release, expected later this year, will add life-cycle project management features to MyEclipse, allowing nontechnical managers to see how development projects are progressing, Marsi said. ■

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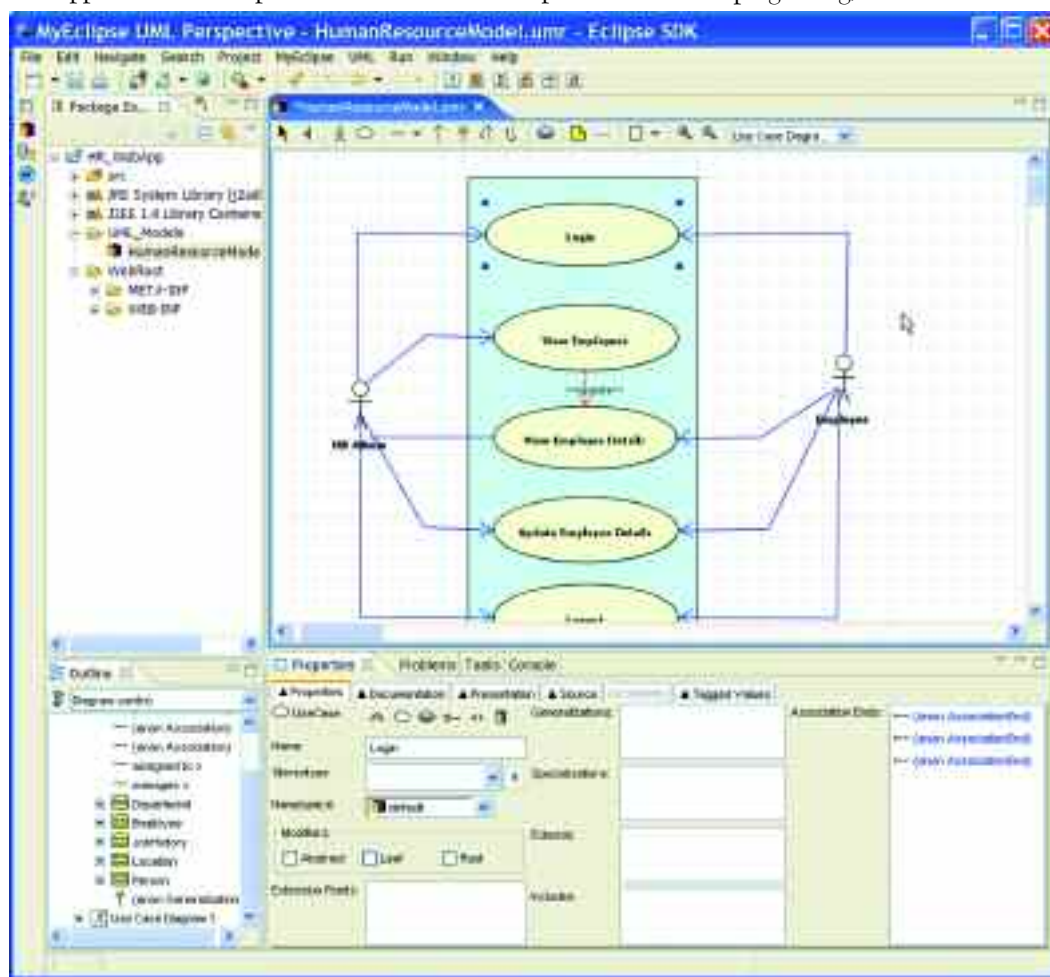
MORE UPGRADES

◀ continued from page 12

the box, Artisan Studio supports C/C++ and Java; it can be extended to support Ada and Spark . . . Express Logic has ported its **ThreadX** real-time operating system to ARC International's **ARC 700** family of configurable processors. The ARC 700 cores combine a 32-bit CPU and digital signal processor in a unified architecture . . . Universal Data Solutions has updated **ASPRunner Professional**, its server for Web-enabling direct access to corporate databases by creating ASP pages to access and modify Oracle, SQL Server, Access, MySQL, DB2 and Sybase databases. Version 3.2 adds support for multilevel users' permissions on different tables, and also multilingual support . . . Segue Software has released version 8.0 of **SilkCentral Test Manager**, its tool for defining, measuring and managing application quality from requirements through deployment. The new release has bidirectional support for Borland's CaliberRM and IBM Rational's RequisitePro requirements management systems. It also integrates with IBM's Rational ClearQuest and Segue's SilkCentral Issue Manager defect management systems, and offers a new manual testing interface and the ability to automatically schedule, execute and analyze test runs . . . eBusiness Applications has updated **Web ComboBox**, its on-the-fly data retrieval component for ASP, ASP.NET, JSP, J2EE and



PHP. Version 3.0 adds new Section 508-compliant accessibility features. It also adds support for AJAX, using XML and JavaScript to improve client-side rendering. The new version also provides new search modes for Web-based data, including intelligent prioritized substring searching, smart lists and nonobtrusive compact lookups. Prices range from US\$199 for a single one-time developer seat to a \$1,999 enterprise subscription . . . Pegasus Imaging is offering version 5 of **ScanFix**, its component toolkit for scanned document image cleanup. New to this release are a fully managed .NET version of the US\$2,499 control, plus improved deskew functionality, improved hole-punch removal, new technology for data entry comb removal, automatic binarization of grayscale images to create bitonal images, automatic detection and correction of negative images, automatic border crop, blank page detection and blank rectangle detection . . . Dundas Software has begun a public beta of **Dundas Chart for Reporting Services**, a component specifically for users of Microsoft SQL Server 2005 Reporting Services. The charting component integrates into the Reporting Framework, and improves the quality of data visualization . . . IronForge is releasing version 2.5 of its **Evolution** source-code control and configuration system with the ability to perform atomic transactions for all operations. Atomic transactions will fail all changes if one doesn't go through, according to marketing director Mark Wood. The company sells the system at US\$550 per seat to put it in reach of small development teams, Wood said. ■



Genuitec has added modeling capabilities to MyEclipse. A UML-based Use Case diagram is shown here.

Microsoft to Showcase Atlas, Windows Vista

BY JENNIFER DEJONG

Microsoft Professional Developers Conference is expected to take place in Los Angeles, Sept. 13-16, with two days of preconference sessions starting on Sept. 11.

The company has said it plans to demonstrate new capabilities of Vista (formerly known as Longhorn), the forthcoming version of the Windows desktop operating system promised for next year. Microsoft also will unveil a preview release of project Atlas, which aims to offer developers an easy way to create Web applications that deliver a richer client experience.

"With Atlas, you can write Web applications that use a lot of DHTML, JavaScript and XML-HTTP, without having to be an expert in any of these technologies," explained Microsoft product unit manager Scott Guthrie in a blog entry earlier this summer. Atlas, which will be delivered on top of ASP.NET, is based on the Web development technique Asynchronous JavaScript and XML (AJAX).

According to the Microsoft PDC Web site, the company also is expected to unveil new developer capabilities for its Office applications, and more

than 70 companies are expected to exhibit products and services at the conference. ■

PDC⁰⁵

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Instantiations: WindowBuilder 4.1 Improves SWT and Swing

BY EDWARD J. CORREIA

Instantiations last month released WindowBuilder 4.1, the latest version of its Java GUI builder that the company says now supports custom widgets, property filtering and

automatic variable naming, and adds several features aimed at simplifying the construction of SWT-based user interfaces for applications.

The US\$299 4.1 release reportedly includes a Property

Editor that can dock with any edge of the design view, enabling developers to relocate the window at any stage of interface development. A new Flyout Palette can dock with either the left or right edge, and when the

option is activated, the palette automatically expands when the mouse hovers over it or collapses when it goes away.

Enhancements to SWT support include the ability to set tab order within a container; support

for BIDI (RIGHT_TO_LEFT) for grid, flow and row layouts; drop-down toolbar items and menus; keyboard navigation within menus; and wizards for Eclipse forms and SWT dialogs. The release also includes a number of enhancements to Swing support, including custom Swing widgets.

A new Property Manager simplifies the management of object properties by displaying important properties in bold at the top of the list. Hidden properties may now be toggled on or off, and are removed from the main view.

The Professional version adds improved support for JFace and the Rich Client Platform, as well as improved internationalization features. ■



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Quest Trots Out Toad For MySQL

BY JENNIFER DEJONG

The database tool Toad has jumped beyond its Oracle roots.

Irvine, Calif.-based Quest Software last month launched version 1.0 of Toad for MySQL. Toad, which originated as a tool for Oracle, is essentially an IDE that provides a graphical depiction of the database, enabling developers (and database administrators) to drag and drop tables, edit data, create and modify database objects and write stored procedures, explained Quest vice president of database management Juli Ackerman.

Toad for MySQL, which costs US\$170 per developer, boosts productivity by providing features such as the ability to validate code, making sure the database returns the expected result. Toad also offers best practices advice on such topics as how to structure a call to the database, or the correct syntax for date and time, said Ackerman. It also makes it easy to recall SQL statements, in order to reuse them, and lets developers open a Web browser within Toad, to get at Internet resources.

Toad for MySQL is Quest's second commercial Toad offering, in addition to the Oracle edition. The company also provides a freeware version of Toad for SQL Server. ■

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Innovartis Busts DB Ghost Into Pieces

BY EDWARD J. CORREIA

Call it a modern-day ghost-buster. Innovartis, giving in to customer demands for a break-up of its database change management tool, is doing just that.

Last month, the company began shipping DB Ghost version 4.0, a tool for Microsoft SQL Server that is now available as separate components that can be mixed and matched in any combination.

DB Ghost permits companies to connect their SQL Server databases to any code control system, thereby permitting them to track changes

to data and schema, or to perform comparisons between databases.

The DB Ghost 4.0 modules are a DB Ghost Database Builder (US\$195), an environ-

ment for developing new databases from drop/create scripts and static data insert scripts; DB Ghost Data and Schema Scripter (\$45), for scripting database schema and data with

support for Visual SourceSafe and image and text data types; and DB Ghost Schema Compare and DB Ghost Data Compare (\$195 each), which compare the structure or data of

two databases to produce a delta script of the respective differences. A \$350 DB Ghost Professional edition combines all modules. DB Ghost Automation Toolkit costs \$890 and includes an API for accessing its capabilities from a command line, build script or third-party monitoring tool. ■

MERCURY BRINGS OUTSIDERS INTO QA PROCESS

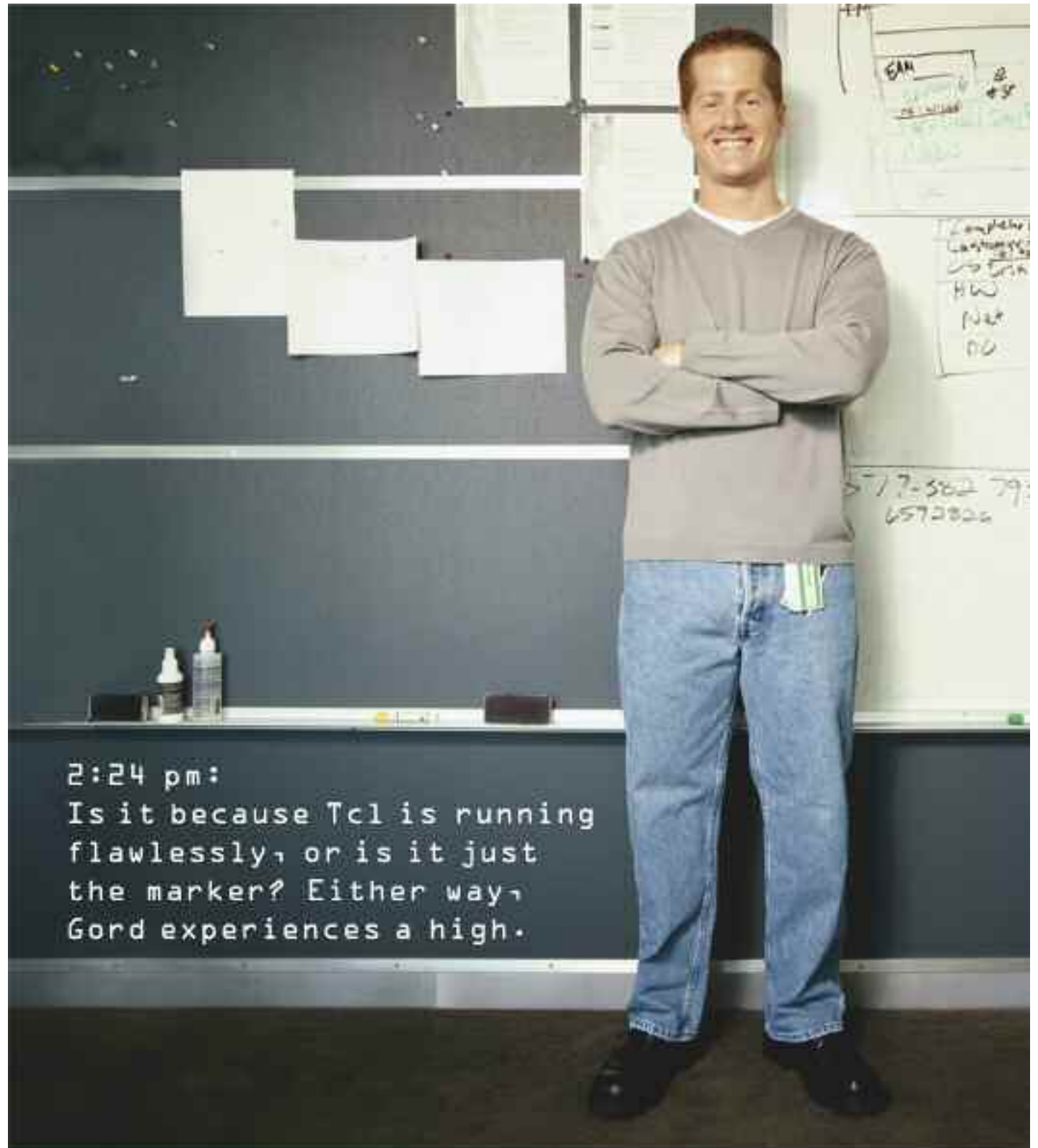
BY ALEX HANDY

Mercury Interactive, known for its business technology optimization products, has placed software testing on the desks of vice presidents and other suits.

The company's Business Process Testing software, released earlier this month, is designed to allow nontechnical business people to bring their expertise into the QA process. Through Mercury's Web-based Quality Center suite of tools, Business Process Testing can be accessed and used to design automated software tests thanks to a point-and-click interface that requires no scripting or complicated setup, the company claims. The software also automates the process of generating compliance documents based on the tests performed.

Mercury has updated Quality Center to version 8.2.1, and added two key features to the 10-month-old Business Process Testing. First, the software is now fully compatible with the company's popular WinRunner testing software. Second, Business Process Testing now gives testers the option to pass or fail each step in the business process being evaluated, thus facilitating communication between testers and developers.

Mercury offers numerous options for licensing per seat, per test or per concurrent users. ■



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Testing Software's Goal: Make Bugs Go Splat

Start-up Solidware enters market with intelligence-driven automation

BY DAVID RUBINSTEIN

Software is getting more complex. Service-oriented applications pull together modules that weren't necessarily meant to be joined. Multithreaded environments can be hazardous to the health of code.

Testing this code earlier in the development phase to eliminate defects via automation and the reduction of risk is the goal of Solidware, which last month brought out the first phase of Splat, its intelligence-driven, automated code visualization and analysis framework.

"It's more of an engineering approach than a process approach," said Sue Kunz, co-founder and CEO of the Boulder, Colo.-based start-up. "How do you amass knowledge and use it to do test automation? We want to take the manual piece [of testing] out wherever possible."

Splat displays the relationship of code modules and performs failure mode analysis, including risk assessment, security and APIs, she said. The company expects to launch different failure modes over time to plug into the Splat framework. By providing a visualization of the application structure, developers can see code attributes, and can assess the quality of third-party software that has been integrated into the production environment.

AIMING AT DEVELOPERS

The initial release, for C language code running on Windows platforms, targets sustaining QA, Kunz said, but the company wants Splat to land squarely amid developers. "The goal is to tie into code management systems and plug into existing IDEs, and drive analysis as the code is being written." Ultimately, she said, there will be three views, for developers, QA and project managers. Kunz said it could take until mid-2006 for the full implementation to be completed and released.

Hoping to change the way people in those roles navigate through the codebase, Splat will implement a filtering mechanism that allows users to pick an attribute, for example,

and home in on an area of interest, such as fewest comments or most bugs, Kunz said. Slider bars then abstract away areas users don't want to view

at that time, she added.

Kunz estimated the market for automated testing tools is in the US\$6 billion to \$8 billion range, because defects are

increasing as code complexity rises, and as users become less tolerant of software that doesn't work the way it should. "There are lots of problems to

solve and not a lot of [automated testing products] out there," she asserted.

The company initially is putting Splat out for free, but will move to a subscription model, including a perpetual license with maintenance option. Pricing has not yet been announced. ■

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New Document Capabilities in Help Authoring Tool

BY JENNIFER DEJONG

ComponentOne has updated its tool that lets developers generate online help resources and printed manuals from help documents authored in Microsoft

Word or any HTML editor.

The Pittsburgh-based company was expected to announce earlier this month Doc-to-Help 2005. New to this year's offering, which costs US\$749.95 per

developer, is the ability to generate documentation from help files created in Microsoft's FrontPage, said ComponentOne managing director Gustavo Eydelstejn.

Doc-to-Help automates the process of converting help files to printed documentation or online resources, picking up Web links and creating indexes and a table of contents, he said.

Also new is the ability to publish platform-independent help files users can open in Web browsers, and to convert help projects created in Macromedia's RoboHelp, a Doc-to-Help competitor. Future releases are expected to support Macromedia's Dreamweaver and to integrate with the help system in Windows Vista, the forthcoming release of the Microsoft operating system, formerly code-named Longhorn, Eydelstejn said. ■



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SYBASE®

Intel Switch Looks Smooth

◀ continued from page 5

from PPC to Intel back in the [Mac OS] 8 or 9 days, it would have been a much bigger challenge for a lot of people."

Tim Lundeen, CEO and founder of WebCrossing, said that his staff is also making the switch to Xcode for this transition. WebCrossing has used CodeWarrior since the company was founded in 1986.

"Well, we're just starting the process," said Lundeen. "It looks like it's going to go really well. One of the advantages we have in the transition is that we build cross-platform code. We already build with gcc. The main issue looks like it's going to be the developers' use of the tool set. Xcode is a scripting layer on top of gcc and gdb. CodeWarrior has a lot of nice features that have been developed over the years that we are looking to find substitutes for."

On the hardware side, many developers have been impressed with the capabilities of Apple's Intel-based development machine.

"We're not seeing G5 performance," said Rogers of the hardware. "We're seeing roughly G4 performance. If you're a desktop designer using [Adobe] Photoshop every day, it's going to be slower."

"It's prototype hardware, so we haven't really evaluated it critically," said Siegel. "It's a Mac. You turn the thing on, it boots into Mac OS X, it runs Mac software. Really, it didn't seem to be much different from running it on a currently shipping Power Mac." ■

BEA Slashes Pricing to the Core

◀ continued from page 1

and multicore just happens to be one of them," said Lewis. "Virtualization is also putting some stress on our traditional software model. The emergence of the grid is also putting stress on the model. Dual core/multicore is one of the first things pressing it," she added.

Lewis went on to say that she expects most companies that charge on a per-core basis to change their policies in the coming year.

One company that is not likely to change its licensing policies regarding multicore systems is Microsoft, which currently charges on a per-processor basis for some software, such as SQL Server.

Sunny Charlebois, product manager for Microsoft's worldwide licensing and pricing group, said the company's goal is simplicity.

"We believe that customers want fairness, flexibility and consistency," said Charlebois. "At the end of the day, we are focused on ensuring that we meet our customers' needs. The ultimate goal is to make our licensing simple and clear and consistent. Our existing licensing works, we don't need to change it. It's flexible enough to handle dual core and multicore."

Charlebois continued, saying "We don't want customers to go and count per core. We really saw this as an advance in hardware, and we really haven't charged for that in the past. When we went from 386 up to Pentium, we really didn't

change our prices in response to that, and it doesn't make sense to do it now."

Charlebois went on to say that Microsoft is constantly evaluating its licensing policies, and that its current fees

for virtualized servers are being closely examined.

That's true for BEA as well. "I think that there is a certain level at which companies are going to expect value," said Roth. "I think in the dual-core

area, people will expect that there shouldn't be any uplift. As you get to four-core or eight-core processors, if performance warrants it, there should be multiple [pricing] structures. We're naturally gravitating

towards a couple of fundamental models. I think there's a per-unit-of-work model, but what drives the model is different usage patterns. Grid and virtualization will potentially drive some interesting price models. I think different products will necessitate different pricing structures." ■

HARMONY

◀ continued from page 1

Sun did not comment directly on IBM's decision, but Graham Hamilton, vice president and Sun Fellow, did comment on the project on his corporate blog. "The licensing rules for J2SE 5.0 were carefully designed to allow independent, compatible open-source implementations of the J2SE specification," wrote Hamilton. "Personally, I am not entirely sure if the world really needs a second J2SE implementation, but at the same time I am also glad to see that all the effort we put into getting the rules and the licensing issues straightened out is actually proving useful!" ■



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SQL Server Rules the Roost

Database study shows that Microsoft databases win for new projects

BY ALAN ZEICHICK

Most developers are using relational databases; the preferred database interfaces are SQL and ODBC; and Microsoft's SQL Server is most likely to be used for current projects. Those are some of the results from the 2005 Database, Access, Integration and Reporting study, conducted in July by BZ Research, a division of BZ Media, publisher of SD Times.

This study was completed by 545 individuals out of a pool of 15,000 surveyed, for a response rate of 3.6 percent. The results are accurate within 2.5 percentage points.

When asked what types of databases they are creating, using or targeting for application development, the vast majority, 94.3 percent, indicated that they are using relational databases. However, also popular are flat-file systems (34.1 percent), object-oriented databases (22.6 percent) and native XML databases (23.1 percent). As expected, more niche technologies didn't fair as well, with embedded or application-specific databases being used by 18.9 percent of respondents, and multivalued systems being used by 5.9 percent.

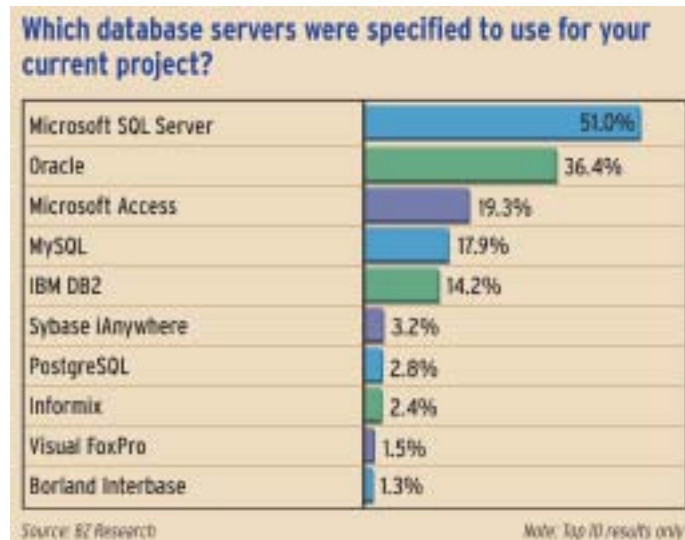
"The push for object-oriented applications to integrate with new and existing relational repositories is causing a shift in thinking about the data access layer," said Jim Votour, an information architect with Russell/Mellon, a global provider of investment performance management services. "Most of the requirements for presenting a non-DB specific interface to applications is being pushed to a centralized data resource management team."

Which databases are being used? The results strongly indicate Microsoft's increasing strength as an enterprise database player. When asked which database servers are currently in use at the respondents' companies, the top five were SQL Server (73.7 percent), Microsoft's Access (63.1 percent), Oracle (58.5 percent), the open-source MySQL (38.8 percent) and IBM's DB2 (30.9 percent).

"SQL Server is a robust

RDBMS, and with the new features of Reporting Services and version 2005, is promising with the integration of Visual Studio .NET features," said one respondent, who asked not to be identified. Another said, "Head of IT made the decision to stick with SQL Server for production and Access for development. We are standardizing around them as we revise legacy applications."

But not everyone agreed. "Oracle is our corporate standard; DB2 is used only where there is an application requirement. Microsoft Access is used only for personal databases or as a data transformation/analysis tool," said Jeff M., who described himself as a senior

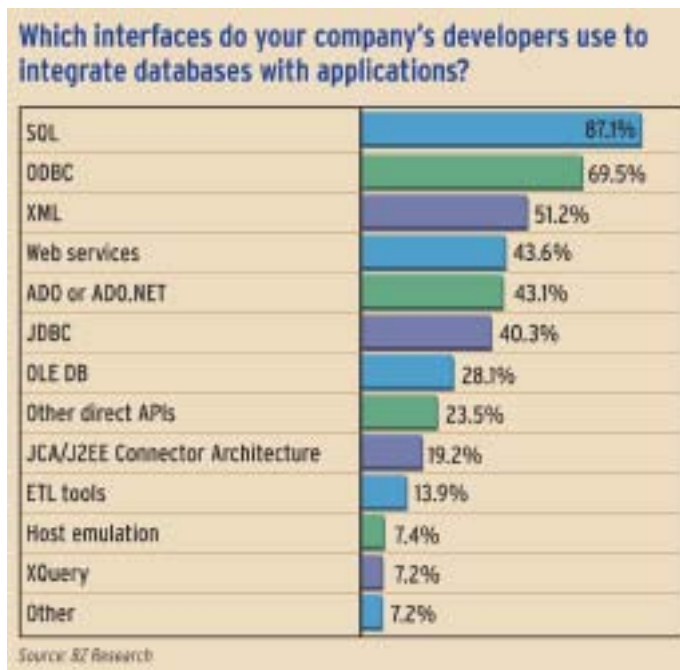


system analyst.

Larry Finch, vice president of strategic projects at Prolifics, a WebSphere consulting shop, added: "We most commonly use DB2 because of its close integration with WebSphere (our corporate standard) and with enterprise server capability. We must be flexible, however, because our customers have their own standards which we must respect."

John Dudeck, a technical engineer with SIM International, a global community of interdenominational Christians, said, "Some think that Access with migration to SQL Server is the way to go. Others think that LAMP [Linux, Apache, MySQL, PHP] is a more sensible choice. I'm with the latter."

There was then a large drop-off before reaching the



Access because "we are a small company right now; when we expand, then I will go to a bigger and better database."

Not all the respondents favored the biggest databases. "Focus is changing from supporting Oracle only to supporting Oracle and Sybase," wrote Marianne Richter, software development manager at CSG Systems, which manages billing systems for the telecommunications industry, "mostly driven by the Oracle pricing structure and the need expressed by our customers to also support Sybase."

The study asked respondents why the database listed above was chosen. The question was phrased, "Which were the top factors that led to the decision to use the database in your current project?" and

there were 31 options presented; respondents could select as many as they wanted.

The top response was "Familiarity with the database," reported by 47.9 percent of those participating in the study. Next most popular were the "High-availability or reliability features," at 25.0 percent, "Lowest deployment costs," at 23.5 percent, "Covered under site license," at 22.2 percent, and "Reputation of vendor," at 21.1 percent.

The next five responses were, "Lowest development costs," at 19.8 percent, "Required by specific applications," 18.8 percent, "Integration with app server," 16.6 percent, "Required by corporate management," 16.2 percent, and "We already buy other projects from vendor," 14.9 percent.

When it comes to using a complex database system, the popular way of accessing it is to use SQL. The question was phrased as "Which interfaces do your company's developers use to integrate databases with applications?" The most popular response, SQL, came in at 87.1 percent, followed by ODBC (69.5 percent), XML (51.2 percent), Web services (43.6 percent), ADO or ADO.NET (43.1 percent) and JDBC (40.3 percent).

In the second tier of responses were OLE DB (28.1 percent), JCA/J2EE Connector Architecture (19.2 percent), Extract-Transform-Load tools (13.9 percent), Host emulation (7.4 percent) and XQuery (7.2 percent). ■



second tier of databases, with Sybase's iAnywhere, Microsoft's Visual FoxPro and FileMaker all coming in at around 11 percent usage.

However, when the study asked, "Which database servers were specified to use for your current project, or if your current project does not use a database, for the most recently completed project that used a database?" Oracle improved its standing at the expense of Access. For this question, the top databases were SQL Server, Oracle, Access, MySQL and DB2.

"Many legacy applications internally and externally developed force the ability to support the Big Three (IBM, Oracle and SQL Server)," said Russell/Mellon's Votour. But another respondent said that new projects are being built in



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Answers Anywhere Can Take a Hint

New user-interface generator uses context to anticipate user actions

BY ALAN ZEICHICK

It's good when applications can answer your questions. It's even better when they can predict your questions and answer them before you ask them. That's the premise of Answers Anywhere 4.0, an updated middleware platform for user interfaces from iAnywhere Solutions, a subsidiary of Sybase.

Answers Anywhere is based on an application that Sybase purchased in April 2004, when it acquired Dejima. The software provides a device-independent user interface framework that can support standard e-mail or Web clients as well as SMS/MMS, instant messaging, WAP and iMode devices found in handheld computers and smartphones.

The software is offered to enterprise customers, at US\$100 per deployed seat, and also to carriers, on a negotiated revenue-sharing basis for services that use Answers Anywhere to provide information.

Answers Anywhere is a Java Platform, Standard Edition (formerly J2SE) application, Dar said, and can run on any Java server. In beta for several months, general availability was to be on Aug. 1.

The software acts as a proxy and content aggregator, bringing together different services and presenting them to the user through one interface, explained Ilan Dar, senior architect at iAnywhere Solutions.

The new version expands beyond the previous aggregation by making predictions based on user activity, thereby reducing the number of interactions required to get at data or to invoke services. "It simplifies the user interface, letting users gain access to a large set of functionality, dynamically conforming to user needs," he said, "by predicting what the user is going to do next."

The software makes its predictions by using agents to look at common features between applications and between different data-entry screens, and also by analyzing past interactions and user preferences.

To enable the predictive behavior and reduce the complexity of the UI, version 4.0 includes what Dar called a context engine, which automatically

generates user-interface tabs and buttons that might apply to the user's next steps in running the application. This saves the user from having to navigate

through menus, or type in text commands, he said.


Developers can provide hints to help the server come up with those likely follow-up activ-

ities for common tasks, using a set of tools included with the software, he said.

Also new to this version is automated generation of SQL

queries from natural language interactions, said Dar. "Answers Anywhere can drive SQL calls from unstructured requests," he said, to simplify the integration of apps with a variety of external data sources. The natural language engine can work in English, French, Chinese and other languages, he said. ■


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Will the Build Bottleneck Put the Brakes on Agile?

People are more likely to gum things up, developers say

BY GEOFF KOCH

For those keeping track, the Agile Manifesto turned 4 years old in February—a moderately mature age in the fast-changing software world. According to several developers, consultants and software executives, the manifesto's proposed lightweight alternatives to process-heavy Dilbertesque coding methodologies are increasingly used across the software development spectrum.

"It sure feels like [agile methodologies] are gaining traction to me—in a big way, in fact," said Tim Walker, a development manager at Boulder, Colo.-based Webroot Software, a company focused on privacy and anti-spyware products.

But as agile moves from hobbyist and hacker to the Fortune 500, critical challenges await.

A handful of software vendors and consultants see a looming build manage-

ment bottleneck, as complex development organizations start reaching for the agile ideal of automated continuous integration.

Building is one thing for the solo developer who just hits the F12 key to compile at every coffee break instead of every few days.

It's quite another for a 500-person development organization working across geographies; coding in C++, .NET, Perl and Python; updating 20 different products; targeting a handful of different target platforms; and, of course, being driven to hit increasingly compressed deadlines.

Other developers say the bottleneck blame is more appropriately spread across different parts of the coding cycle, or more commonly, when it's assigned to the most error-prone part of any process: people.

Whichever camp is right, digging beneath the agile and build management foundation is a sure way to unearth opinions on everything from the virtues of version control to the proper use of lava lamps in software development. (Hint: tell your spouse not to throw it away, yet.)

VIEWING MARKET POTENTIAL

Years ago, Joe Senner wrote code for and maintained part of the Unix kernel. As he remembers it, builds took an entire weekend and rarely went smoothly.

"Streamlining the build process is a quality-of-life issue for developers," said Senner, today the chief technology officer of BuildForge, an agile-oriented application life-cycle management company he founded in 2001.

BuildForge has successfully slashed build times at several leading software



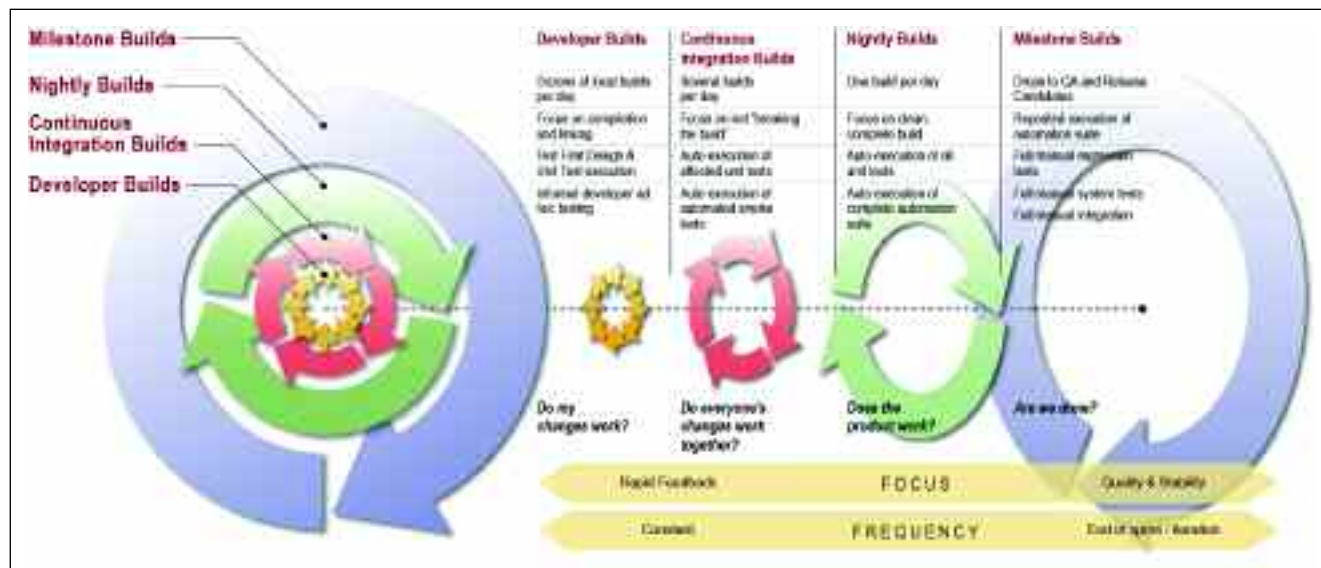
BuildForge's Senner remembers when a build could take up a developer's whole weekend.

companies. According to Senner, his ALM tool helped Electronic Arts to reduce a 60-hour build to a three-hour build, Adobe Systems to increase the number of code-build-test cycles from 18 to 360 per week, and telecommunications equipment maker Avaya to turn a 10-hour build into an unattended 10-minute pushbutton process.

To evaluate eye-catching claims like this, it's important to weigh plain old process improvement against the benefit

of the tools themselves, said Mike Clark, an agile-focused programmer, consultant and author.

"Teams that want to be more agile are headed for a train wreck if they have long build times; they'll need to find ways to build all or part of the software more frequently to get the kind of continuous feedback that helps agile teams move quickly," said Clark, who hasn't used BuildForge. "But I don't see that as a tool problem as much as it's a build process



Serena's James Van Riper, at right, devised a diagram to explain how the company's build and integration activities—from frequent desktop compiles to long lead-time milestone builds—fit together in an automation strategy that takes all build-related activity into account.



structure company Electric Cloud, current approaches to dealing with this complexity and speeding associated build times aren't working. Distributing builds across multiple processors in an SMP machine or across a cluster is too expensive, manually partitioning Makefiles is too difficult and time-intensive, and doing incremental builds for production software (instead sending complete builds through QA on the way to release) is too risky, the company says.

"We have found the build to be a bottleneck in most software development organizations, and our studies have shown that, on average, developers spend between 10 percent and 20 percent of their time waiting for builds," said John Ousterhout, founder and CEO of Electric Cloud. "The problem has been that organizations don't understand that the bottleneck can be easily eliminated, so they have gotten used to walking with a limp."

Electric Cloud's growing batch of case studies describe several customers—Force10 Networks, Intuit and Qualcomm—using the company's tools to streamline their build process and implement continuous integration.

'NOT ROCKET SCIENCE'

While they're not necessarily described in slick case studies, several open-source continuous integration tools exist. And many agile adherents say these community-built alternatives more than suffice.

"A build tool is not rocket science," said Robert "Uncle Bob" Martin, CEO of software consulting company Object Mentor and co-author of the Agile Manifesto (www.agilemanifesto.org). "Any team that can build a software project can build a tool to build that project. The tool does not need to be complicated, nor does it need to solve world peace. All it has to do is build the system, run the tests and report status."

Open-source and agile-friendly tools include Ant and Make for automatic builds; Anthill and CruiseControl for

continuous integration; and FIT and JUnit for testing.

Even when it comes to integrated development environments—tools that many say are worth their complexity—open-source alternatives exists.

Two of the leading Java IDEs, Eclipse and IntelliJ, are available in open source. According to Martin, both IDEs are tightly bound with agile processes, including unit and acceptance testing and support for refactoring. (ReSharper, a VisualStudio .NET add-in, may make for better agile programming in .NET environments, though it's not open-source.)

Martin said that FitNesse, a software development collaboration tool, closes the last major gap in the agile tool suite—how customers tell programmers what the software should do. FitNesse, intended in part to allow customers to specify requirements without having any specific coding knowledge, should complement JUnit, an open-source Java testing framework used to write and run repeatable unit tests.

James Shore, a Portland, Ore.-based Extreme Programming (XP) and lean development consultant, said the do-it-yourself approach is consistent with the core principles of agile programming.

"In the early days of agile, people asked how they could pair program when they worked in cramped cubicles," Shore said. "The response from the agile adherents was to grab a screwdriver, take down the cubicle wall and make room for another person. It's always been more about empowering people than worrying about technological control."

BuildForge's Senner doesn't seem worried about countering the open-source claims. Eventually, organizations realize that a proprietary build system is not their core competency, similar to the way they realized this about databases, source-control systems and defect-tracking systems, he said.

"Essentially, the open-source tools

can accelerate builds from one to three times, but they fall over dead after that," said Ousterhout, adding that most of Electric Cloud's customers first failed with open-source tools. "The reason this happens is that builds have hidden dependencies that cannot be expressed in the Makefiles."

A BUILD SOLAR SYSTEM

Asking whether build is an agile bottleneck may be too simplistic a question, given the nested complexity of many development teams.

James Van Riper, vice president of research and development at change management company Serena Software, manages one such team. Van Riper's 60 developers work out of their homes and offices across the United States and the United Kingdom.

Serena recently transitioned from milestone builds to continuous builds. To help think through the transition, Van Riper built a model roughly patterned on the solar system. The concentric circles, or orbits, represent build iterations.

"The closer you are to the center, the faster you go and the more builds you do," Van Riper explained.

At the center of Van Riper's solar system is the single developer doing regular and frequent builds on his desktop while working on his particular coding assignment. The developer likely runs a short

► continued on page 30

problem. That is, I don't think tools will help as much as getting someone on the team to optimize the build process will."

Optimization may be easier said than done. New languages and libraries ooze increasing amounts of code while the 20-year-old Make-based infrastructure lags behind advanced IDEs. Worse, ongoing coding projects create deeply recursive and dependency-laden groups of Makefiles that only a conjurer can untangle.

According to software build infra-

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Challenges Await as

← continued from page 29

list of unit tests as part of this iteration.

The next ring is where continuous integration happens, perhaps for a sub-team or maybe for the whole group. The timer can be set to kick off the build every 15 minutes, including all the code that's checked in at that point along with a larger group of tests, including a smoke test.

Then there's the nightly build, which includes the entire codebase. On the outer ring is the milestone build that is handed off to QA after passing the complete suite of tests.

What keeps these development worlds turning?

"As a company, we like to mix it up so we can experience what our customers are experiencing," Van Riper said. "For the most part, we're using Anthill. But for our sophisticated processes, we end up adding a lot of stuff. It isn't install it and go."

Van Riper's diagram at least hints at all the human glue that holds together even the most automated agile shops. The best-laid agile plans can go awry if people don't use the tools appropriately.

Lazy use of version control, intentional or otherwise, is one such pitfall.

"Even if builds are happening with some regularity, if all programmers aren't checking in their updated code frequent-



Agile Manifesto co-author Hunt says many dev shops still don't use version control.

ly, then bugs start sprouting and it becomes difficult to back out and fix bad code," said Richard Leavitt, vice president of Boulder, Colo.-based Rally Software Development, which provides coaching and on-demand tooling for scaling agile software development.

And that assumes a version-control system exists at all.

Andy Hunt, programmer, author and another co-author of the Agile Mani-

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Agile Moves to the Fortune 500

festo, said that many development shops in the United States still don't use any form of version control and instead simply build the product using the last settings in the IDE. Changes easily can get lost, and lots of time is wasted tracking down bug artifacts of the ad hoc build process.

"Some widely used version-control systems are well known to corrupt and lose source files on occasion," Hunt said. "That's just incredible to me, especially since excellent free, widely used, open-source solutions abound—CVS and SVN come to mind."

Even some who are otherwise fans of open source cite the importance of good version control.

Rajiv Delwadia, chief technologist at life-cycle planning and management application company VersionOne in Atlanta, said that most open-source tools are good enough for most teams. "But if you're going to pay for anything, pay for good source control," he added. (Delwadia's team uses Microsoft's Visual SourceSafe.)

THE HUMAN DIMENSION

Whether the build process puts the brakes on agile and when to consider proprietary tools misses the point for software consultant and trainer Mary Poppendieck.

"Absolutely, tools and technology are not the [agile] bottlenecks," she said. Instead, Poppendieck, the author of "Lean Software Development: An Agile Toolkit," points squarely at people-centric problems:

- Approval processes that dump large batches of work on a development organization at once, or that overload the development organization.
- Detailed and ongoing customer clarifications of what they really want (particularly when they don't really know).
- Testing that occurs long after development so developers don't know if they are doing the right thing or whether tons of work has to be redone.
- Deployment—especially when code is tossed over the wall at users and support organizations that have not been involved up to that point.

A narrow focus on the agile build-management tension also may obscure the big-picture

view of agile's slow ascendancy as a mainstream software methodology. And it certainly misses the fun developers are having as they integrate often and stay close to shippable code.

Clark has heard of organizations setting up Web pages with RSS feeds about the output of the continuous build so that real-time information is constantly pushed to the person who needs

it. For those who want to trade RSS for more retro-technology, Clark's blog has an example of setting a lava lamp to a continuous build machine. The lamp, powered by X-10 equipment,

glows green if the build is OK, red if it's not.

"Continuous integration offers all sorts of fun ways to get feedback on the health of software," Clark said.

Software development as fun? Just don't tell Scott Adams. This could finally cause new Dilbert material to dry up. ■

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EDITORIAL

Building on Agility

Has it only been four years since the Agile Manifesto was created? Thanks to the manifesto, as well as best-selling books like Kent Beck's "eXtreme Programming eXplained" and Martin Fowler's "Refactoring: Improving the Design of Existing Code," agile methods have become increasingly popular.

Unfortunately, although the methodologies are popular, they're often misunderstood.

For many people, agile methodologies == Extreme Programming, or XP == programming in pairs. That concept seems to have stuck with many people as the sine qua non of agility, perhaps because it's controversial and doesn't have obvious benefits. It's also the biggest break with traditional processes.

Of course, there are more agile methodologies than Extreme Programming, and there's more to even XP than pair programming. Many agile methodologies call for designing the application using user stories, for close communication with customers, for frequent (or daily) builds, for incremental software releases, for coding unit tests prior to adding new functionality, and for constant refactoring.

Many of these goals, and those of all the agile methodologies, make perfect intuitive sense. How can you argue against encouraging your developers to communicate with customers, or against constant testing of new code?

Where agile methodologies have trouble can be in the execution of these principles.

Take the concept of frequent or continuous builds. While fine in theory, in practice this can be difficult for a nontrivial codebase. Without sophisticated build automation tools, the build process can be balky and temperamental. Yet, those build automation tools can be expensive to license and complicated to use—and even when they're present, the build might take a long time to execute.

For a small team and a small project, nightly builds aren't a problem. For a large, distributed development team working on a multilanguage, cross-platform application, where the build might take dozens of hours to execute, they're a potential bottleneck. Before embarking on a new agile project, be sure to analyze the impact that the project will have on your build systems.

Still, don't let the build issues dissuade you from adopting XP, Scrum or any of the other methodologies, or even concocting your own in-house agile processes. For the most part, development organizations have seen success with agile methods. The trick is to remain focused on the objectives, mainly reducing development time while improving software quality. Even if compromises on build frequency become necessary, don't lose sight of the need for constant testing, testing, testing.

In fact, if there's one part of the development infrastructure that needs beefing up, it's typically the version-control or source-code-control system. Without good systems, as well as the discipline to use them, changes can be lost, files can be overwritten, and time can be wasted tracking down bug artifacts. While agile methodologies are all about empowering the people—the development team—just make sure you have the build and source-control tools to make it all work.

Otherwise, you won't be truly agile at all. ■

It's Not Too Late to Learn

On Feb. 3, 2005, Robert S. Mueller III, director of the Federal Bureau of Investigation, appeared before a Senate subcommittee to explain how the FBI had managed to waste US\$104.5 million.

This couldn't have been a very comfortable position to be in.

In 2001, the FBI had launched the Trilogy project, a project designed to update the FBI's IT infrastructure.

Trilogy came in three parts: update the network, update the hardware and update the software. Guess which one Robert Mueller was talking about?

That's right—the software. "Virtual Case File," or VCF, was intended to allow FBI agents to upload information to a centralized database so that it could be easily accessed by others.

It was a disaster, and the \$170 million project was canceled for a loss of \$104.5 million.

Sadly, the loss was entirely avoidable: The FBI made many classic mistakes. In this article, I'll take a look at three of these mistakes and apply

lessons learned from the agile software movement.

Classic Mistake No. 1: Ignoring the Users. User involvement is a critical factor in the success of software projects.

In its 2004 CHAOS report, the Standish Group cites user involvement as the top project success factor, and lack of user input as the top cause of project problems. Despite this, there is no indication that the FBI made the involvement of actual agents a priority in VCF development.

In agile projects, user involvement is a central concern.

Many agile projects have an "on-site customer"—a user representative who is directly responsible for picking priorities and defining features. Agile teams produce working software every month (or even every week) for demonstrations and user review. They recruit outside customers to regularly review

these releases and provide feedback.

User involvement isn't easy. At the March meeting of the Portland Software Development Roundtable, a participant described a government project for the state of Oregon. For several periods of six months, different groups of seven to eight users were physically moved to the capitol in order to work out detailed requirements. Larger user groups did extensive testing and review close to each release.

Ultimately, development involved 1,000 users around the state. This was no small investment, but it resulted in a successful project.

Admittedly, the users with the best understanding of what's needed are often the ones who are the busiest doing other important things.

It can be hard to get their time. It's tempting to say that you don't need those users and hope that you can get by with just your business analysts.

James Shore



Letters to the Editor

SOA IS 'MARKET-ECTURE'

From what I've seen, the term SOA (service-oriented architecture) was first used in 1995 and today has digressed into a perversion of itself. Just look at all the companies (90 percent Windows platform-based) who use the SOA term loosely to encompass "everything" business, from technology to management processes.

I can't count the number of people I've seen who have blended the two terms Web services and service-oriented architecture together. How ridiculous and naive to think non-IT focused businesses such as Proctor & Gamble, Coca-Cola, Hyundai Motors, won't eventually figure out this is a "market-ecture" ploy by IT companies wanting to get into their businesses.

There are at least 70 companies out there with sales literature offering revolutionary "SOA Services" (services for services?). How stupid this all is

when you think about it. What's even more stupid are all the journalists out there who got confused with Web services (and some still are). Many still use the term Web services in its strictest sense (for example, a travel Web site is a Web service)...not anything to do at all with WSDL, SOAP, UDDI, etc. They should be calling them "XML Web services" like Capient, Microsoft, IBM, Sun, Amazon and others consistently have to avoid confusion.

Unless it's a technical capability that follows industry guidelines such as those published by the WS-I organization, then we are not talking about the world of XML Web services. Almost all data can be exposed as an XML Web service (internally or externally), using the aforementioned XML Web service protocol stack to reduce complexity, lower IT costs and attract more profitable relationships. If

someone has not been doing their research and is hyper-spaced to a different IT dimension by some rogue company and/or is off the beaten path and working with a different standards model, then they are possibly not reaching their full potential.

Rich Hapner

MAKING SMALLTALK

In the article "IBM Won't Make Smalltalk Anymore" (May 15, page 8), IBM spokesman Greg Bonadies said the company decided to end VisualAge Smalltalk because of general marketplace directions, customers' IT investment patterns and IBM's software groups' portfolio strategy, all of which are moving toward Java, J2EE, Web services and SOA.

While I won't deny the popularity of Java, Smalltalk is alive and well in the marketplace. Unlike IBM, Cincom is committed to Smalltalk, and continues

Got \$104.5 million to burn to find out?

Classic Mistake No. 2: Expecting Requirements to Remain Stable. Requirements always change. Always. Expecting requirements to remain stable is like expecting the weather to be the same every day. It's tough for users to imagine what they want without seeing it, so when they do see it, they're going to change their mind.

The FBI dealt with this fact of life in the same way many companies do: by complaining about it. This is a slightly less sophisticated form of the "change control board," a thinly disguised mechanism for preventing requirements changes. Either way, preventing requirements changes just means that the software you deliver is less likely to do what your users need.

Agile projects acknowledge that change is inevitable and put mechanisms in place to make it possible.

As previously mentioned, agile teams take every opportunity to produce working software and to show their software to actual users. This helps identify changes early and allows them to be implemented more easily.

Extreme Programming, an

agile method with the catchphrase "embrace change," goes even further. It describes specific design and programming techniques that make the software more malleable and able to deal with arbitrary changes. These techniques include Test-Driven Development, Refactoring and Simple Design. If your team isn't familiar with these practices, now is the time to learn.

Classic Mistake No. 3: "Big Bang" Deployment. VCF was meant to be a replacement for a mainframe-based "green-screen" application. The FBI decided to deploy VCF with a "big bang" approach: They would develop a full replacement for the old application, switch off the old one, and switch on the new one.

This is a foolhardy approach. From a technical perspective, it means that you have to have a complete replacement for all of the functionality in the old system.

Often, it means that even defects in the old system have to be replicated, because other systems depend on those defects to work properly. It's an immense undertaking, one that's very difficult to get right.

Even with perfect technical execution, a big-bang deploy-

ment is foolish from an economic perspective as well. Big-bang deployment means that you can't deploy anything until the end of the project. That means you see no benefit—no return on investment—until the very end of the project.

Agile projects already create working software on a monthly or weekly basis for their users to review.

It's no surprise that agile teams like to deploy frequently as well. Rather than waiting for all features to be completed and doing a big-bang deployment, an agile team will identify the most valuable features of the new system, work on one at a time, and deploy each one incrementally as soon as it's finished.

This makes a lot of sense. Integration is a big source of risk and doing it in a smaller chunk, sooner, helps mitigate that risk. At the very least, it identifies unexpected integration problems much earlier in the project. Economically, it allows value to start flowing early. Incremental deployment requires the old and new system to exist side by side for a time.

Although this can be a technical challenge, and could increase costs, it's lower risk

than a big-bang deployment. The reduced risk and economic benefit of seeing value earlier should outweigh the increased costs in almost every case. Big-bang deployments are just too dangerous.

IT'S NOT TOO LATE

The classic problems listed above weren't the only problems plaguing the VCF project. Contractual issues and management churn completed the cocktail. As a result of these problems, VCF has been canceled, to be started over with a new acronym.

The FBI director's testimony before the Senate shows that the FBI has recognized Classic Mistake No. 3 but not the other two.

It's too late for the FBI, but it may not be too late for you.

Does your project involve users, expect requirements change, and deploy incrementally? If not, now is the time to start.

Standing before the Senate and telling them you've wasted \$104.5 million of taxpayers' money is no place to be. ■

James Shore is a longtime Extreme Programming coach and agile practitioner. He writes about agile software development at www.jamesshore.com.

to invest significant engineering resources into both VisualWorks and ObjectStudio, both of which make up Cincom Smalltalk.

Cincom is not the only Smalltalk vendor in the marketplace either—Object Arts has just announced the imminent release of Dolphin 6, and Gemstone is about to make a 64-bit version of their product available. A visit to the "Why Smalltalk" site (www.whysmalltalk.com) will point interested developers to the large (and growing) number of Smalltalk implementations.

In short, the Smalltalk space is healthy, vibrant and growing. Developers who want to experience higher levels of productivity instead of engaging in "me too" Java development should check it out.

James Robertson

Editor's note: James Robertson is product manager for Cincom Smalltalk.

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What's Your Company's Preferred Software Licensing Method?

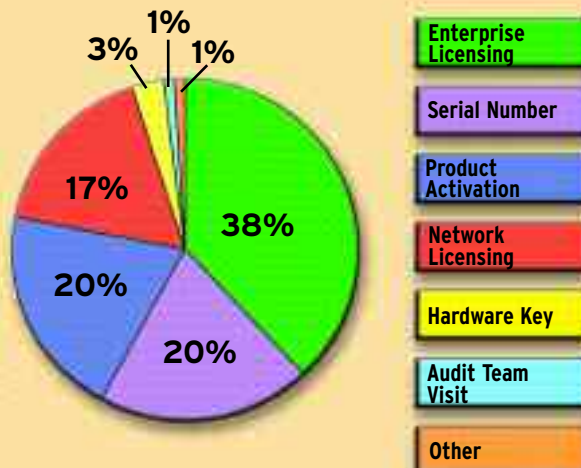
Enterprise licensing is by far the preferred method of purchasing software for companies, according to a study published in April by Enterprise Consulting Partners, an Ann Arbor, Mich.-based media company that focuses on asset-management newsletters and conferences.

The study defines enterprise licensing as a software usage fee based on the number of computers, users, employees or other verifiable quantity. Often the cheapest method, this method, the study states, also is sometimes selected as a means to avoid reconciliation of license rights with actual installations.

What's more, the study also found that in the overall context of risk management, "enterprise licensing may be the lesser of two evils—cheaper than the cost to fix high-profile compliance-problem areas like accounting-control audits."

However, the researchers predict that with advances in active license-management programs, other forms of license management such as serial

number, activation and hardware key will be replaced by models under which users pay for what they are actually using. As a result, "enterprise licensing is likely to become the most expensive licensing option, as software publishers see this class of users as unwilling or unable to accommodate the newer usage-based licensing models, and thus, having no alternative."



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Java Studio Creator

I've been spending the past day or so fooling around with Sun's new Java Studio Creator, and this column gives my first impression. (I reserve the right to change my mind once I've worked with it more.)

At the risk of putting Descartes before da Horace, I'll start with my conclusion: There's so much wrong with this product that it's hard to figure out where to begin.

Java Studio Creator is one of a long line of products that started out with Microsoft's "Visual" tools, circa 1985. Microsoft had come up with a miserable "foundation-class" library (Microsoft Foundation Classes) that nobody could use to build real applications. Once you got past the executive-demo stage, MFC was very difficult to program, buggy and not really up to the task. It took months of study to get good at MFC programming, and systems built with MFC were far from robust. I know of several projects (Sun's original AWT library was one) that were simply discarded and rewritten using the underlying Windows APIs because MFC proved so ungainly.

The Microsoft solution was unfortunate. Rather than replace the library with something more reasonable, Microsoft chose to wrap it. Microsoft built a series of "wizards" that wrote bad code for you. In

fact, since it was machine-generated, the actual program—at the source-code level—was even worse than it would have been had you built it by hand. At least you didn't have to look at it.

Java Studio Creator follows in Microsoft's footsteps. Sun has put so much PR hype into the J2EE APIs that it can't really admit that these APIs are flawed. Like Microsoft, Sun has provided a tool that writes hideously overcomplex code for you so you don't have to do it yourself. I'd rather write good code to a good API than wrap a bad API with machine-generated code that I can't understand. (Let's hope they'll fix some of the problems with the existing APIs in future versions of Java.)

Sun has actually done an OK job on the tool itself. Using Studio Creator, you can put together a trivial Web application based on JavaServer Faces in almost no time. Studio Creator isolates you from the complexity of JSF, with its XM-hell configuration files and complex plumbing.

The process looks like Visual Basic, treating an application as a user interface with intelligent warts (written in

Java) hanging off of it. This Java executes when you interact with various components such as buttons. You can lay out your screen, insert controls, modify properties and edit the attached code. A graphical tool lets you set up navigation. You can easily bind data (both fields and database tables) to widgets. If your app does nothing but expose the database to your end user, Studio Creator will work great for you.

The problem is that most of the apps that I've worked on are not this simple. Take database binding. I usually work very hard to hide the database from my object model. That is, I start by designing and building an object-oriented system around user-defined use cases. When necessary, I store an object's state in a database using a transparent persistence mechanism like Hibernate. The object model comes first, then I add persistence. My goal is to be able to change the database schema without impacting the object model (or vice versa).

I apply the same reasoning at the user-interface level. I start with the object model, then I figure out how to

let objects display themselves. I want to be able to change the UI without significantly impacting the object model and vice versa. Again, the object model comes first. A program is not a UI with intelligent warts on it; it's an object model that exposes a user interface.

An application built with Studio Creator doesn't even have an object model, though. The direct binding of the UI to the underlying implementation (both at the field and the database level) makes this sort of modularization impossible to accomplish. As a consequence, applications built with Studio Creator will be both difficult to maintain and difficult to extend. If you change the object model, you'll either have to root around in all that machine-generated gunk or go into Creator and manually change the code associated with each control. This is way too much work for me.

The core flaw in Creator is the chimera of programmerless programming. I'm sure that some managers will look at Creator as a way for nonprogrammers (or at least very junior programmers) to program. Though they'll certainly be able to throw together something that appears to work in record time, in the long term, Creator is not a substitute for good structure and carefully hand-crafted code. ■

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Java Watch



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Searching for Desktop Integration

The goal of all integration is access. Whether it is universal access to classrooms, as in *Brown v. Board of Education of Topeka* (Kan.), or universal access to data, the overarching goal is the same.

In IT, technologies such as EAI attain integration by normalizing data, ESBs do it by sneaking data transformations along the transport, and Web services do it by wrapping data transformations with verbose narratives. But how do *you* integrate data? Not your company—you personally. Chances are good that while you wrestle with the data silos in your enterprise, your desktop is nothing but silos.

Power users' desks have silos for e-mail, calendar data, documents, code, Web pages, software and so forth. Within these domain silos are smaller silos. Take e-mail and its standard organization mechanism, folders. Many times, a specific e-mail could be filed in any one of several folders for later retrieval. The problem is, I don't know which folder I'll think of when I want to retrieve it, and I don't want to copy the same data item into multiple folders. The exact same problem exists with files. Many times I have a file that could be placed in any of several directories. (Unix symbolic links are a partial solution here.)

The robust solution to breaking down silos, according to Google and several other firms, is search. For example, Google Mail has no concept of folders. You can mark conversation as being associated with a given label, and any thread can have many different labels, so you can retrieve messages thematically. But all messages are stored in a single indivisible folder, and the principal retrieval mechanism is search. This metaphor works brilliantly. Searches are fast, and it's easy to zoom in on the e-mail you're looking for.

The trouble with Google Mail is that it works on mail only. (There are other limitations: Notably Google Mail does not search attachments.) What I need to do is search all my documents, e-mails, files, data. Enterprise search tools, such as the Google appliance or IBM's Information Integrator OmniFind, don't really do this. They're designed to search databases, Exchange containers and internal Web sites. They don't really do your desktop.

One very common desktop integration tool is a separate product from Google: the company's desktop search engine, which is available at desktop.google.com/business. This looks just like the online version of Google but for your desktop only. It is useful in integrating disparate types of documents in a single search; but after using it for a month, I must say my overall experience remains frustrating. There are several interesting limitations.

The first of these appears right after installation. The crawler starts crawling your database, making an index that will feed the search engine.

The trouble is that you have no specific control over this crawler. It runs when it wants to. If you just add a library of articles, Google Desktop solution will scan it whenever it decides to. Remove a file and who knows when that even will be recognized. Per the company, the only way to force a recrawl is to uninstall and reinstall the software. Not ideal on a system where files come and go or change location frequently.

In addition, the crawler is limited. As to e-mail, it reads only Outlook and Netscape mail. Eudora users are out of luck (which is odd since Eudora uses standard text files to hold e-mails). The system also skips important file types:

Help files are not crawled (which is a serious limitation; often what I am looking for is in a help file), nor are .zip files, and PDF files are not crawled well. Moreover, there is a 5,000-word limit per document on all crawls. So, even if the software could read help files, you might still not find what you want even though the data is there.

It's hard to throw stones at free software, but it certainly seems that these limitations are intentional—Google could remove them. And now that I've seen what a desktop search engine can deliver, I am convinced that I would happily pay for the software if these limitations were lifted.

Unfortunately, open-source offerings are fairly thin. Of the few such projects, Zilverline project (www.zilverline.org) is the most advanced and mature. It addresses many of the concerns I have about Google's product. But it's not quite turnkey, as you have to install and configure Tomcat first, then load and configure Zilverline—but it's a good start.

Given the proliferation of data and documentation, productivity requires the integration of desktop through search. The tools, even if still not fully formed, are worth exploring now, and they will, I believe, become essential soon. ■

Andrew Binstock is the principal analyst at Pacific Data Works.

Integration Watch



Vision Statement

According to a recent article in *BusinessWeek*, the ranks of "computer and mathematical occupations" in the United States increased in the second quarter of this year by 7.5 percent. InfoWorld's annual salary survey shows IT salaries finally returning to their 2001 level.

So, is it time to breathe easy, have a margarita and relax by the pool? (Well, it is summer after all, and everyone in Europe takes the whole freakin' month of August off, so it's not a terrible idea, but please come back when you're done.)

To put the question another way, how's the second half of the decade looking for the American programmer?

Although I wish I could say otherwise, I think the second half of the aughts is going to look more like the past five years than the second half of the 1990s (hereinafter, *The Good Ol' Days*).

There doesn't seem to be any massive technological wave preparing to roll in; as much as Microsoft may have hoped that Smartphones, the Tablet PC or Windows Vista (formerly code-named Longhorn) would have triggered the imagination of developers, at this point all of those appear to face

long, incremental slogs toward ubiquity rather than triggering any iPod-like mania.

That's not to say that Microsoft won't make a big splash about Xbox 360, Windows Vista and Windows Mobile 2009 (or whatever they'll call it). It's just that one of the few global advantages that Joe Six-coder has is up-close exposure to a marketplace that does, on occasion, take off like a rocket.

Amazon just celebrated its 10th anniversary.

What's today's equivalent? Flickr? NewsGator? Fine companies with fine products, and certainly I look forward to the day that Stewart Butterfield and Greg Reinacker sponsor battling America's Cup syndicates, but when push comes to shove, I knew HTTP, HTTP was a friend of mine, and RSS is no HTTP.

There's definitely been a level of dissatisfaction on the language and tools front that has formed into a vocal "dynamic languages" community, but I don't see a language emerging that has the breakout appeal of a young Visual Basic or Java.

C++/CLI is a great piece of plastic

surgery on an aging star, but the industry likes 'em young, and even Python and Ruby are beginning to be a little too old to reshape the industry.

I have no doubt that C# will take things to a new level, and the PDC has several sessions dedicated to the Inte-

Windows & .NET Watch



grated Query Framework, which will apparently unify querying of object graphs, XML and relational data, and which, in conjunction with the hosting of the CLR in SQL Server, represents a full-scale assault on the object-relational impedance mismatch. I think it will change the way we develop programs.

I just don't think it will change the careers of thousands of developers.

Of course, I'd love to be wrong about this and become one of those "can you believe they didn't foresee it?" fools. A breakthrough in voice recognition or machine inferencing, some kid in a garage with a secondhand copy of the dragon book, or to resurface one of the favored words of *The Good Ol' Days*, some synergy between technologies—it's more than possible

that in five years the industry will be fundamentally changed.

I just don't think it's the most likely course.

Having said that, the combination of the Internet, agile techniques and open protocols has led to a situation where, in author Seth Godin's memorable phrase, "small is the new big." While I don't think that the industry of software development is going to be revolutionized in the next five years, there's no reason why *you* can't revolutionize your career, particularly if you have an entrepreneurial tolerance for risk.

As a software developer, you are among an incredibly tiny percentage of people who can not just conceive of a product, but quickly get an excellent idea of the path toward making it a reality.

Will you create the next Amazon or Google? Probably not.

Is it possible to create a product and a company that are successful enough, if not to run an America's Cup syndicate, to sponsor a couple of square feet on a job? Absolutely.

Just don't be surprised if you end up outsourcing the majority of the coding. ■

Larry O'Brien is a technology consultant, analyst and writer. Read his blog at www.knowing.net.

Moving FAST Forward

Creating software is hard enough. Tweaking it to create a software product line—multiple versions of the same product for different platforms, different feature sets, different pricing and different customer branding—can quickly get out of control. Imagine if every time Toyota wanted to release one Camry with automatic transmission and another with a five-speed manual stick, or one red and another silver, the company's engineers had to redesign the car, and draw up a new set of specifications, and that all the components, such as side-view mirror motors and the interior speakers, would have to be re-tested. I'm sure that before you could say "You've got it, Toyota," the company would stop offering options.

Software product line development is no different. It grew out of research done in the 1990s to define a methodology for reusing software assets effectively and efficiently. Visionaries such as David Weiss, then of Bell Laboratories, believed that reuse in software product line development should require that a software artifact only be created when the reuse of the asset can be assured across the product line. (Most other asset reuse plans simply call for placing all software components in a repository in the hopes that someone else in the organization can find a project to reuse the asset in someday.)

The idea back then was to look at this kind of development as creating different members of a family, taking advantage of work done in previous iterations to eliminate rework, rather than creating a whole new project each time require-

ments change. This family-oriented approach to development, where the abstractions between versions are described, specified and then translated into deliverable software, came to be known as the FAST process.

Fast-forward to today, and the reality is that the process of developing product-line software is anything but fast.

Industry Watch



Data extrapolated from Software Engineering Institute case studies indicates that as much as 50 percent of development time is eaten up dealing with issues surrounding multiplicity. A software company called BigLever wants to change that by assigning first-class problem status to variations in a software product line.

"Developers think it's part of the air they breathe," said BigLever CEO Charles Krueger. "Organizations say, 'Nah, it's not a problem for us.' It's not in the forefront of most developers' minds."

The academic work is fine, but it's largely theoretical in nature, with no real understanding of the pragmatic problems organizations face when doing this type of development, Krueger said. So BigLever has developed a tool—Gears—that enables organizations to automate the process of creating multiple versions of software.

Integral to Gears is the ability to produce a model that can show the points in a product line that cause variations to occur. It could be an optional feature, or a price point. At the code level, Gears introduces the notion of a variation point. Choices of code or methods are encapsulated with a set of rules at those points where a feature or

function needs to vary, Krueger said.

The decisions about which features are required in each product line iteration are made at the model level, and then Gears takes those decisions, visits the variation points in the code base and instantiates the decisions to create a single product flavor.

Yet, Krueger acknowledged, this method of creating software hasn't caught on at the developer level. "We get traction at the lead architect or vp of development [level]," he said, "someone with an overview of the different release schedules and a broad view of software development and delivery" within an organization.

While folks such as Weiss and Krueger are beating the drum for the use of these techniques—Weiss is keynoting at the Software Product Line Conference next month in Rennes, France, on the topic of next-generation software product line engineering—they have heard that the tools haven't kept up with the ideology.

The tool track of the upcoming conference has solicited comments from software engineers doing this kind of work regarding their experiences, the quality and effectiveness of the tools they use and requirements for better products down the line.

By soliciting this type of input from developers, conference organizers are trying to bring the problem of creating multiple flavors of the same product out of the margins and into the spotlight. If business managers clearly understood the costs of multiplicity, they could make decisions as to whether myriad versions of a product are really necessary, or find ways to cut the amount of time spent on creating them. The SPLC tool track is an important step to move the concepts of FAST forward in a pragmatic way. ■

David Rubinstein is editor of SD Times.

BUSINESS BRIEFS

IBM earlier this month announced plans to acquire customer data integration middleware supplier **DWL**. Terms of the deal were not disclosed. DWL's technology allows companies to use their data to optimize customer relationships or integrate data after mergers and acquisitions. Built on a Java-based platform and a service-oriented architecture, DWL's development is consistent with IBM's overall software strategy and complements IBM's information integration portfolio, IBM said in a statement. . . . **Sybase** announced it will acquire mobile software solutions provider **Extended Systems** for about US\$71.3 million in a deal expected to close late this year. Extended Systems sells OneBridge, server-based software for securing access to applications from a variety of mobile devices; and database software primarily for Delphi developers who want to create applications for deployment on mobile devices.

EARNINGS: **Microsoft** reported record fiscal-year revenue of US\$39.79 billion and net income of \$12.25 billion for 2005, driven by double-digit percentage growth in its server and tools business. Revenue was up 8 percent from 2004's figure of \$36.84 billion, the company said. For the fourth quarter ended June 30, revenue was \$10.16 billion, with earnings of \$3.7 billion or 34 cents per share. For fiscal 2006, ending June 30, 2006, Microsoft expects record revenues of between \$43.7 billion and \$44.5 billion. . . . **Mercury In-**

teractive Corp. announced revenue of US\$207.1 million for its second quarter 2005 ended June 30. This marks an increase of 30 percent from the \$159 garnered in the same quarter a year earlier, the company reported. Deferred revenue for the quarter decreased, due largely to fluctuations in foreign exchange rates, the company reported. Net GAAP income for the quarter was \$18.6 million, or 19 cents per share, compared to \$11.6 million (11 cents per share) from Q2 in 2004. The company expects third-quarter earnings to be in the range of \$205 million and \$215 million, with GAAP EPS of 17 cents to 22 cents per share. . . . **Compuware** reported fiscal first-quarter revenue of US\$297.3 million, with net income of \$24.6 million. For the same quarter a year earlier, revenue was \$287.1 million and earnings were \$644,000. Software licenses were \$68 million, a roughly 25 percent improvement over the previous year's figure of \$54.1 million, and maintenance fees were \$107.4 million, up from \$103.5 million. . . . **Sybase** reported better-than-expected second-quarter fiscal 2005 revenue of US\$204.4 million, a 9 percent increase over the year-ago quarter. License revenue increased to \$67.9 million. Pro forma net income for the quarter was \$25 million, or 27 cents per share, compared to \$17.3 million or 18 cents per share, from the same quarter in 2004. "We're very pleased with the better-than-expected results this quarter, as we executed well across all segments of our business," said CEO John Chen. ■


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